ProFouND: Prevention of Falls Network for Dissemination

DELIVERABLE D 4.3
FIRST SUITE OF TAILORED TOOLKITS AVAILABLE ONLINE WITH IMPLEMENTATION GUIDELINES

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1 Description of deliverable and tasks for WP4 (DoW)

Objectives:
A central objective of ProFouND is to construct a system for providing customised information to users, be they health care provider organisations, health or social care professionals, NGOs, or older people themselves. WP4 will provide the content for ProFouND Fall Prevention App PFPApp. This will be done by constructing a library of evidence based best practice objects (the component atoms which can be assembled into full guidance) for each domain of the customisation tool, based on reviews of evidence. WP4 will also be responsible for ensuring these objects are available in the various languages used by partners and supported by the customisation engine.

The deliverable for WP4 month 20 was the following:

D4.3) First suite of tailored toolkits available online with implementation guidelines [Month 20]

WP4 has performed the following task the first 20 months:

Task 4.4: The tailored information (toolkits for individual patient, patient group or service specific information) will take longer to compile, as they require the collation of a large series of “advice objects” which can then be used to generate a specific tailored regimen based on an underlying risk and characteristic algorithm implemented by WP2. This is probably best explained by example and we use exercise as the example, but the system will be just as suitable, and developed for, medical interventions, such as medication review, occupational therapist environmental modification and safety review, orthotics etc. Different exercise interventions are broadly most effective amongst different risk groups, for which age has often been used as an imperfect proxy. Thus crudely speaking the oldest have been considered highest risk and most frail and thus best served according to the evidence by Otago exercises. Hence many services are offered on such a crude basis. But far more subtle and effective distinction could be made based on the characteristics of the older person and his or her abilities. Even within a programme (be it PSI, Otago, or Stepping On) the older person at commencement will have different abilities, and may be best started at a higher rather than the most basic level of challenge. Thus questions about ability to perform tasks will be included to permit tailoring of levels within exercises. Likewise a person with visual impairment will require different intervention support to a person with good sight, and may do better with a programme of exercises and safety modifications, whilst the latter are not needed by a sighted person. It will thus be possible to generate a checklist of questions based around e.g. Westmead Assessment specifically for people with visual impairment, to tailor the intervention regimen for their requirements and to deliver an optimum programme for that individual, but skip such a group of questions for people with good sight. The ProFaNE consortium has previously delivered a tailored balance exercise information website and published on its ability to increase intention to uptake exercise.

2 PFPApp: background

The development, dissemination and continuous improvement of the PFPApp (also called tailored toolkit) is one of the core activities within the ProFouND consortium. This is partly due to the fact that similar approaches have not been performed or are insufficient. This ambitious subproject required careful planning and a strong interaction between the WP leaders, other members of the network and external partners wherever needed. In line with the DoW it was decided that the most urgent requirement would be an App design targeting older persons (still) living in the community and to see modifications for acute and long-term care as a secondary requirement. The burden of fall-related injuries is most prominent in older persons living at home. Further baseline discussions focused on the starting/entry points for fall prevention that differ in the European countries. Differing levels of expertise exist in the EU 27 context, health care professionals (HCPs) committed to fall prevention are not identical and access to evidence based modules for fall prevention are heterogeneous. Whereas in some countries and regions almost all components are accessible, other regions might have almost no specific and dedicated services available. The consortium agreed that for the first PFPApp version we would be targeting a range of (English speaking) HCPs (health care professionals) such as general physicians, physiotherapists, occupational therapists, community nurses, including regions with different levels of fall prevention services and not only best practice regions. For the first round the group decided to focus on supervised contacts by the HCP excluding unsupervised use of the APP by lay persons.

Apps as part of the fall prevention assessment, decision making and counselling can serve several purposes. The process of screening and assessment is currently described in several documents such as the NICE (National Institute of Clinical Excellence, London, UK) guidelines or the updated recommendations from the British Geriatric Society (BGS).

These recommendations are certainly not perfect. Very often they have been criticised for being too time consuming or that they lack sufficient prognostication. The current recommendations have not considered innovative and very promising approaches using ICT technology like instrumented sensor or smartphone based assessment and/or unsupervised long-term monitoring of physical activity.

We discussed that it would require a slow formal consensus process to modify these well accepted recommendations. This would be beyond the capacity of the ProFouND consortium.

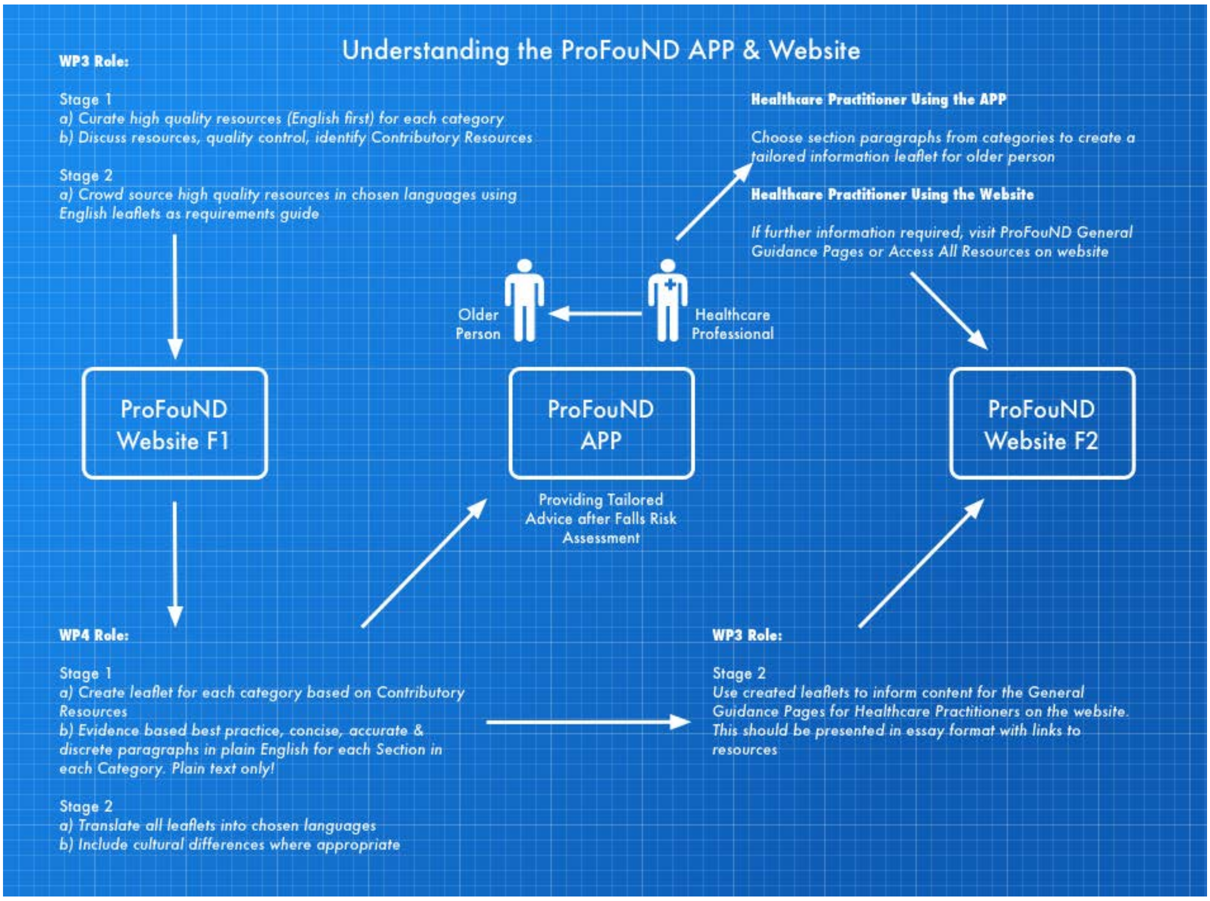
Therefore we decided that the PFPApp should start to facilitate the decision making process, support the targeting of persons at risk and fast track prevention efforts and finally personalize the information to facilitate uptake by the older persons. This remains an ambitious goal.

3 Contribution to the content of the APP

In the following you find a list of the major meetings which promoted the development of the App:

Meeting in Trondheim:

- 9th October 2013
- WP2, WP3, WP4
- Content: Development of a common understanding of the PFPApp and the website


Understanding the ProFouND APP & Website
Older Person
Healthcare Professional
ProFouND Website F1
ProFouND APP
ProFouND Website F2
Providing Tailored Advice after Falls Risk Assessment

WP3 Role:

Stage 1
a) Curate high quality resources (English first) for each category
b) Discuss resources, quality control, identify Contributory Resources

Stage 2
a) Crowd source high quality resources in chosen languages using English leaflets as requirements guide

Healthcare Practitioner Using the APP

Choose section paragraphs from categories to create a tailored information leaflet for older person

Healthcare Practitioner Using the Website

If further information required, visit ProFouND General Guidance Pages or Access All Resources on website

WP4 Role:

Stage 1
a) Create leaflet for each category based on Contributory Resources
b) Evidence based best practice, concise, accurate & discrete paragraphs in plain English for each Section in each Category. Plain text only!

Stage 2
a) Translate all leaflets into chosen languages
b) Include cultural differences where appropriate

WP3 Role:

Stage 2
Use created leaflets to inform content for the General Guidance Pages for Healthcare Practitioners on the website. This should be presented in essay format with links to resources

Figure 1. Understanding the ProFouND App & Website

9th January 2014

- Internal research associates (3 sports scientists, 2 physicians, 2 psychologists, 1 gerontologist, 1 epidemiologist) therapists (1 physiotherapist, 1 occupational therapist) guests (physicians from Switzerland)
- Content: Definition of PFPApp-contents, definition of leaflet-contents

See attachment for further details.

PFPApp-Workshop in Brussels

- 4th February 2014
- WP1, WP2, WP4, WP5
- Content: Further development of the PFPApp

See attachment for further details.

PFPApp-Workshop at the ProFouND Partnership meeting in Barcelona:

- 12th March 2014
- All partners involved
- Content: Update partners about current version of PFPApp falls scenarios, received feedback from partners and other falls prevention experts as well as lay people.

See attachment for further details.

Additionally to the major meetings we developed continuous feedback loops particularly with WP2 (regular mail exchange, telephone calls, Skype meetings), but also with WP1 and WP5 and other falls prevention experts (e. g. Stephen Lord).

We asked 10 colleagues not involved in ProFouND to test the PFPApp by typing in the data of 1-2 older persons they know. They were asked to give us feedback regarding the following questions: Is the PFPApp self-explanatory? Which content should be added? Are the terms clear? Is the structure clear?

4 Development process of the APP

The content of the APP was developed according to the best available evidence and in full accordance with the Cochrane Review, the ProFouND generic guidance and fact sheets. The process included workshops, email exchange, telephone conferences with the WP leaders and their groups, ProFouND partners and associates. Based on a paper and poster version the ICT formats were subsequently created which is described later in this deliverable (wireframes, user interfaces, webdesign). The continuous involvement of WP leaders, partners, associates and external experts is expected to result in an interest of further testing and feedback for improvement.

4.1 Fall case scenarios as the starting point

We acknowledge that an App could be started from different starting information such as the result of a sensor based assessment or as part of a clinical pathway after an injurious fall such as hip fracture. For the PFPApp we decided that the starting scenario would be contacts of home-dwelling older persons as part of a routine visit or after a fall be it without or with an injury. Based on the evidence we identified four scenarios that would have to be covered. This is also crucial as the entered information should lead to different recommendations and to a personalized but still reasonable prevention plan. The following scenarios are therefore part of the ProFouND APP.

Scenario 1: The older person has not fallen during the past 12 months but might have balance concerns and/or might describe a subjective worsening of gait and other balance related functions during a regular visit.

Scenario 2: The older person has fallen during the past 12 months. This is reported as a single fall without an injury.

Scenario 3: The older person has fallen several times during the past 12 month but has not had an injury.

Scenario 4: The older person has fallen with a fall related injury such as a fracture.

According to the current evidence it is required to assess and treat these persons in a different manner. This is briefly described in the following section.

Scenario 1: The person will be asked about fear of falling (single item) and a simple performance test (up and go test) will be performed. If both – question and up and go test – are normal the advice is to participate in regular PA (physical activity) but no further testing or intervention is required. In case of significant balance concerns a participation in a cognitive behavioural intervention is recommended. A best practice example is the Dutch version of the Matter of Balance program. In case of a poor performance in the up-and-go test a group program of balance and strength training would be recommended (examples are Tai Chi, LIFE).

Scenario 2: The person will be asked about the circumstances of the fall (skilled interview) and an up-and-go test is performed. Identical to scenario 1 a one item question is recommended. The fall history might lead to further medical testing (e. g. loss of consciousness, falls as part of another medical event, rushing to the toilet due to a UTI or urge incontinence etc.). If the up-and-go test indicates functional deficits it is recommended to take action for the participation in a group or home based program to prevent further falls and injuries. The choice of group vs. home depends on the person's preference and access to group programs which is documented within the PFPApp. Balance concerns would be addressed in the exercise program.

Other good clinical practice recommendations can be given but are not mandated.

Scenario 3: The person will be asked about the circumstances of the falls (skilled interview) and an up-and-go test is performed. Multiple falls will lead to further questions and testing. This would include a structured medication review, the assessment of the vitamin D status, a question on visual impairment and an analysis of the home environment. In this scenario an exercise program is likely but not always recommended. One example is the evidence on persons with severe visual impairment or blindness where a home modification is the first step and an exercise would be only introduced after home modifications.

Exercise intervention in this group are likely to be more intensive (e.g. FaME) and will last longer to be effective.

Scenario 4:

The APP guidance is similar to scenario 3 but bone health assessments (DEXA and lab measures) are recommended. Frequently a bone health medication will be part of the multidimensional process.

4.2 Development of the wireframes

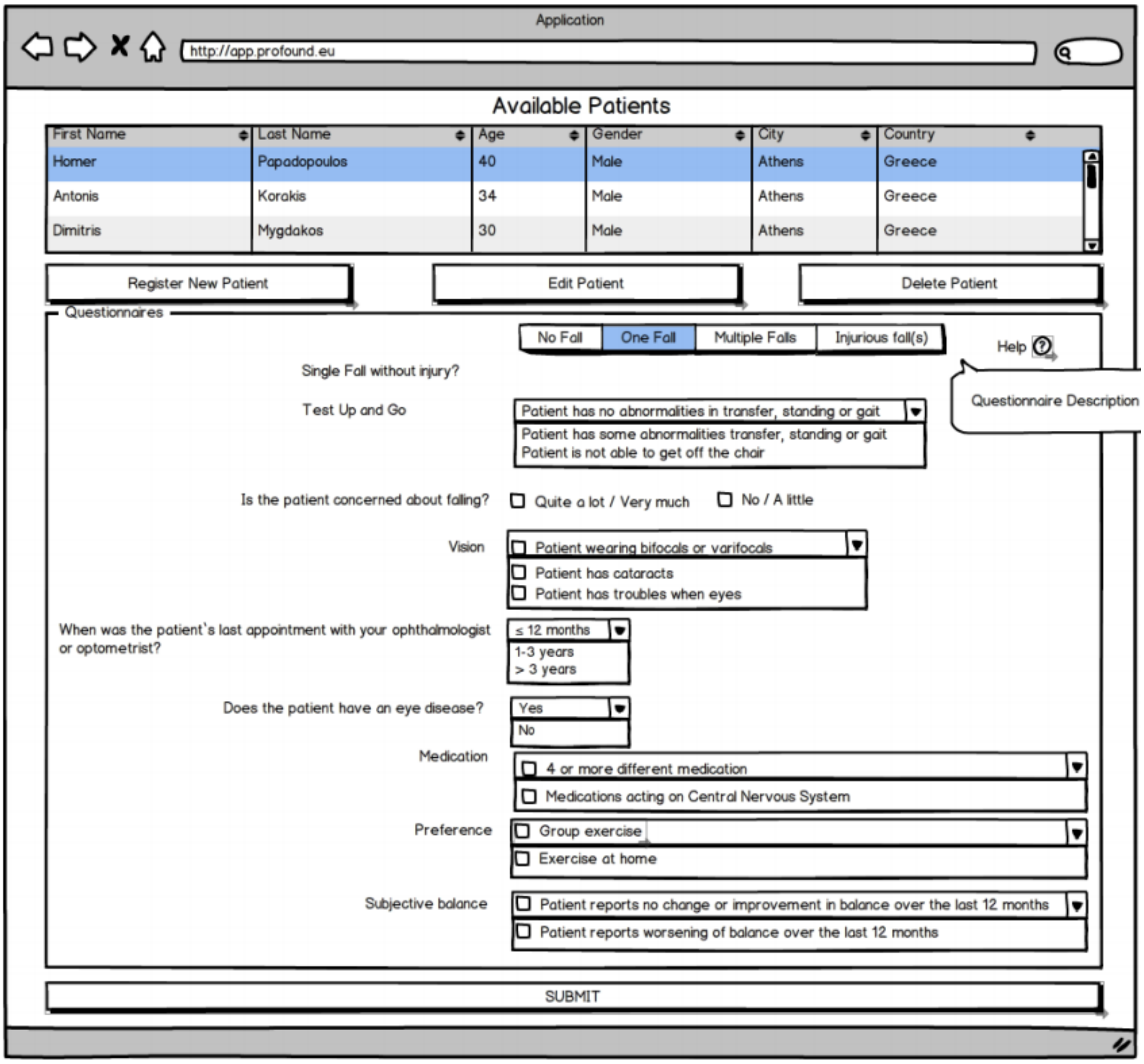
The initial step for the App development was the production of the app's wireframes. A wireframe, (also known as a page schematic or screen blueprint), is a visual guide that represents the skeletal framework of a web page. Wireframes were created for the purpose of arranging elements to best accomplish our purpose.

The wireframes produced, lack typographic style, colour and graphics, since the main focus lies in functionality, behaviour, and priority of content. In other words, they focus on what a screen does and not how it looks like.

Wireframes focus on:

- ✓ The range of functions available
- ✓ The relative priorities of the information and functions
- ✓ The rules for displaying certain kinds of information
- ✓ The effect of different scenarios on the display

One wireframe was designed for each of the App web pages. Below is the main app page wireframe that "describes" the page's functionalities.



Available Patients

First Name	Last Name	Age	Gender	City	Country
Homer	Papadopoulos	40	Male	Athens	Greece
Antonis	Korakis	34	Male	Athens	Greece
Dimitris	Mygdakos	30	Male	Athens	Greece

Single Fall without injury?

Test Up and Go
Patient has no abnormalities in transfer, standing or gait
Patient has some abnormalities transfer, standing or gait
Patient is not able to get off the chair

Is the patient concerned about falling? ☐ Quite a lot / Very much ☐ No / A little

Vision
☐ Patient wearing bifocals or varifocals
☐ Patient has cataracts
☐ Patient has troubles when eyes

When was the patient's last appointment with your ophthalmologist or optometrist?
≤ 12 months
1-3 years
> 3 years

Does the patient have an eye disease?
Yes
No

Medication
☐ 4 or more different medication
☐ Medications acting on Central Nervous System

Preference
☐ Group exercise
☐ Exercise at home

Subjective balance
☐ Patient reports no change or improvement in balance over the last 12 months
☐ Patient reports worsening of balance over the last 12 months

Figure 2. Main Application Screen Wirefreame

Based on these wireframes, the final user interface modules have been decided with all the partners. Attached you will find the other wireframes.

4.3 Development of the user interfaces

The application's purpose is the production of a user interface which makes the operation easy, efficient, and enjoyable. Solutions and tools for accessible Graphical User Interfaces design are used to implement easy-to-use and efficient visualization and interfacing solutions, taking into account the specific user and application requirements. The user interface is simplified where possible to make user's interaction simple and direct.

The hardware parts needed for the application to be implemented are a Web Server and a Database that are currently installed in NCSR Demokritos. The Web Server contains the Web Services, which enable the communication between the Server and the Database and all the files needed by the app. There is also an identical architecture in an alternative ISP for failover purposes. This means that when the primary components become unavailable due to either a failure or a scheduled down time, the secondary components (backup operational components) become available so that the application is always up and running.

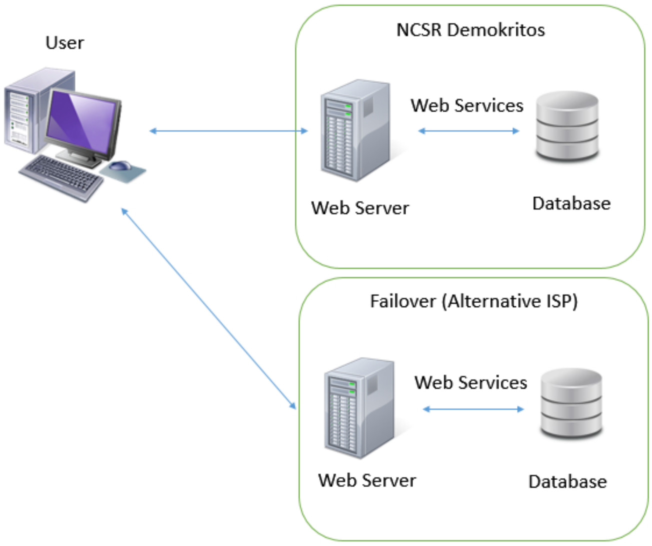


Figure 3. App Architecture

The frontend of the application was developed using the web technologies PHP, HTML, CSS, Javascript and jQuery. The development procedure included the transformation of every wireframe into a web page. Special care was given so that the pages are simple and clear to help the user understand the functionalities without any questions.

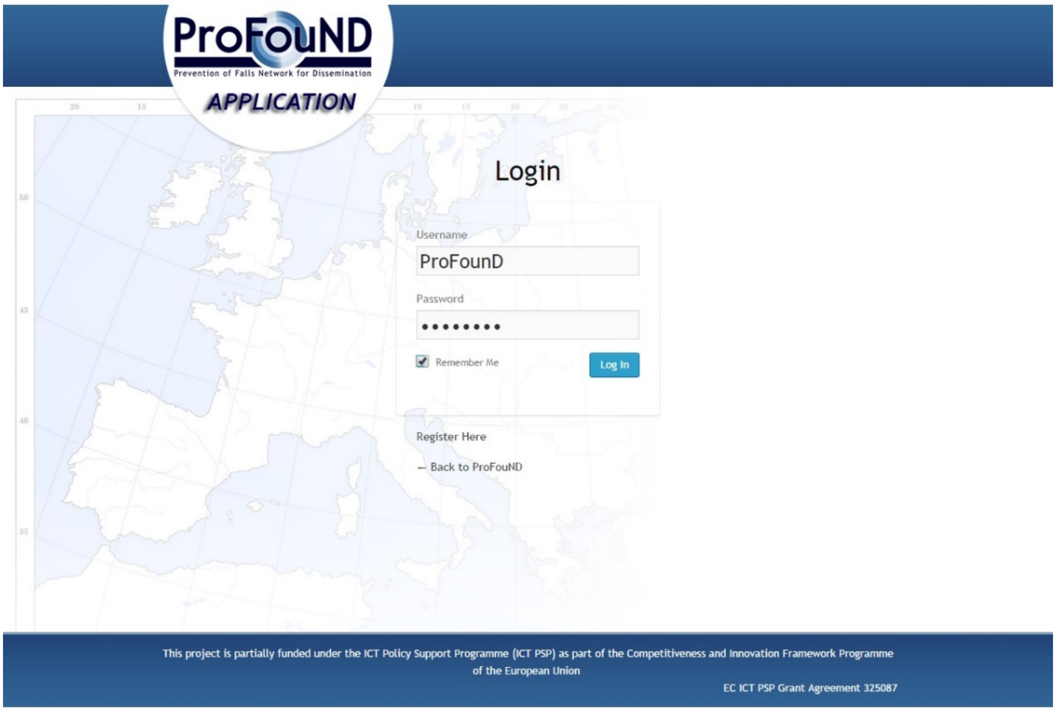
The application includes the following pages:

- Login Page: User enters credentials and login in to the application or clicks register to register a new account

- Register Page: User enters his personal information to create a new account.

- Register Intervention Options Page: The first time a user enters the application, some information have to be collected about what Intervention Options are available in the user's area.

- Main Application Page: User can add, edit or remove patients, can answer questionnaire for a patient and get the corresponding recommendation. User can also see a patient's history, containing all the questionnaire a patient has answered along with their answers.


ProFouND
Prevention of Falls Network for Dissemination
APPLICATION
Log In
Register Here
← Back to ProFouND

Login

Username: ProFounD

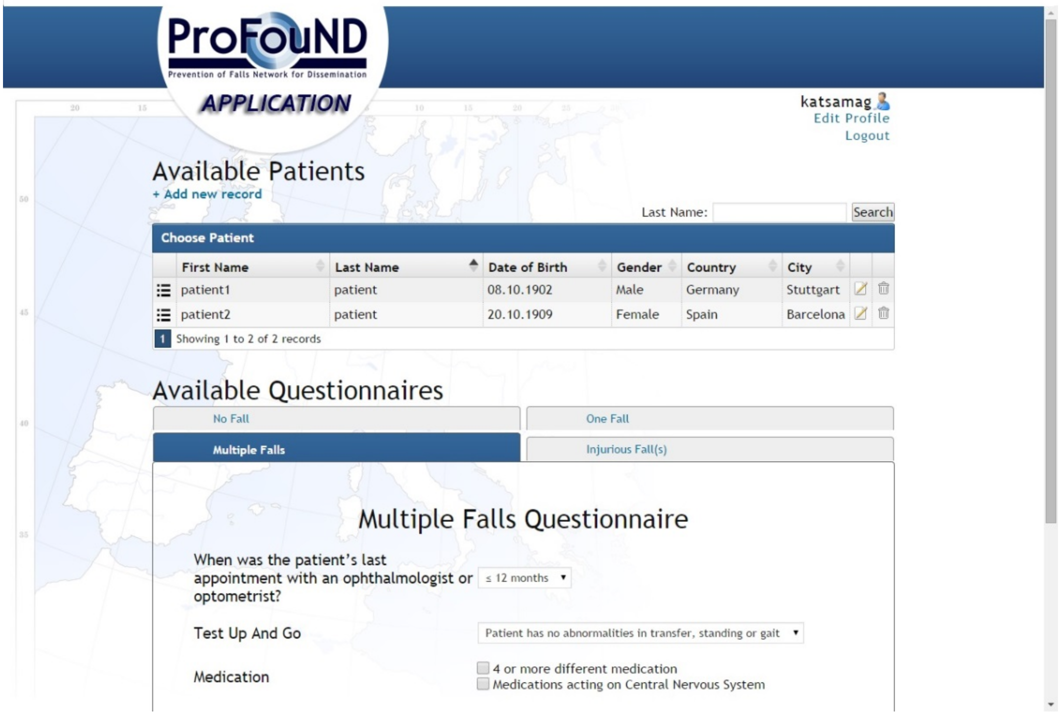
Password: ••••••••

☑ Remember Me

This project is partially funded under the ICT Policy Support Programme (ICT PSP) as part of the Competitiveness and Innovation Framework Programme of the European Union

EC ICT PSP Grant Agreement 325087

Figure 4. Login Page


ProFouND
Prevention of Falls Network for Dissemination
APPLICATION
katsamag
Edit Profile
Logout
+ Add new record
Search
No Fall
One Fall
Multiple Falls
Injurious Fall(s)

Available Patients

Last Name:

Choose Patient

	First Name	Last Name	Date of Birth	Gender	Country	City		
☰	patient1	patient	08.10.1902	Male	Germany	Stuttgart	✎	🗑
☰	patient2	patient	20.10.1909	Female	Spain	Barcelona	✎	🗑

1 Showing 1 to 2 of 2 records

Available Questionnaires

Multiple Falls Questionnaire

When was the patient's last appointment with an ophthalmologist or optometrist? ≤ 12 months ▾

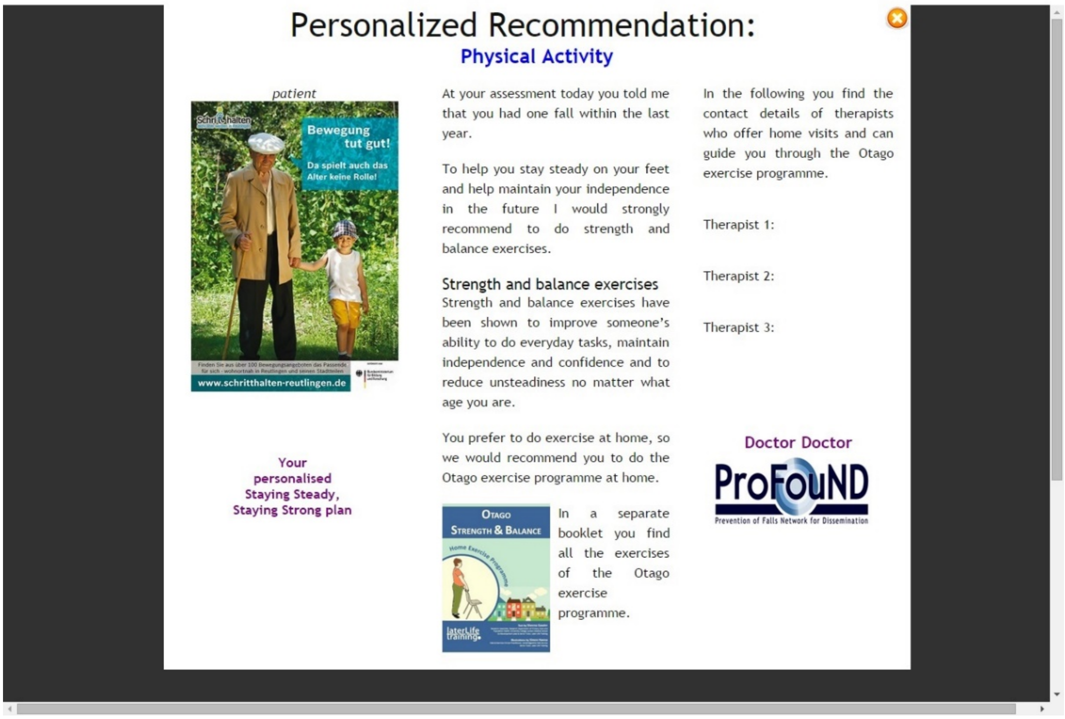
Test Up And Go: Patient has no abnormalities in transfer, standing or gait ▾

Medication:
☐ 4 or more different medication
☐ Medications acting on Central Nervous System

Figure 5. Main Applicaion Screen

- Edit Profile Pages: User can edit the personal information or the intervention options that had been submitted during the registration phase.

- Recommendation Page: Displays the recommendation that is produced, depending on the answers that were submitted for a particular patient.



Personalized Recommendation:

Physical Activity

patient

Schritthalten
Bewegung tut gut!
Da spielt auch das Alter keine Rolle!
www.schritthalten-reutlingen.de

Your personalised Staying Steady, Staying Strong plan

At your assessment today you told me that you had one fall within the last year.

To help you stay steady on your feet and help maintain your independence in the future I would strongly recommend to do strength and balance exercises.

Strength and balance exercises

Strength and balance exercises have been shown to improve someone's ability to do everyday tasks, maintain independence and confidence and to reduce unsteadiness no matter what age you are.

You prefer to do exercise at home, so we would recommend you to do the Otago exercise programme at home.

In a separate booklet you find all the exercises of the Otago exercise programme.

In the following you find the contact details of therapists who offer home visits and can guide you through the Otago exercise programme.

Therapist 1:

Therapist 2:

Therapist 3:

Doctor Doctor

Figure 6. Recommendation Screen

The backend development of the application included the entire App's logic and the Web Services. The App's logic contains all the combinations of the different scenarios that are described above and the different recommendations that are produced depending on each scenario. The production of a recommendation, based on the information that the user enters by answering the questionnaires, is a combination of data stored, in the development stage, in the database and web services.

All the data that the application uses and produces are stored in a MySQL database and are encrypted, using the AES128 encryption algorithm. Furthermore, the communication between the database and the application is only achieved via Web Services for security reasons, meaning that the database is not directly accessible (i.e. for running SQL queries) for others.

Web Services define a set of functional capabilities that clients can engage with the goal of realizing some application logic on top of profound data. In this sense, the Web Services form an Application Programming Interface (API).

The protocol used by web services is based on SOAP (W3C, 2007). The communication is encrypted (using HTTPS protocol) and username/password based authentication scheme is used. Profound web services use SOAP 1.2. It assumes that all data in SOAP requests are in Unicode, specifically, the Unicode (or UCS) Transformation Format, 8-bit encoding form (UTF-8). In SOAP responses, the service always returns data in UTF-8.

The Web Services have been implemented with the utilization of Microsoft's Windows Communication Foundation (WCF). Thus, web services consist of a set of Web Services, typically one per profound Database table. Every Web Service defines a number of functions (operations) that clients can execute by sending a SOAP message.

The web services consist of a number of Web Service endpoints. For describing the protocol, we use an example for logging in a user to the application. This Web Service is accessed via its URL:

http://143.233.247.63/users.svc?wsdl

This Web Service, as all others, defines a number of functions (operations) that clients can execute by sending a SOAP message to the above URL. This function is identified by its name *LoginUser* and its SOAP Action:

http://143.233.247.63/Iusers/LoginUser

Web Services designed according to W3C recommendations are presumed to have their interfaces described in a machine-processable format, using Web Services Description Language (WSDL). This applies to profound Web Services. The WSDL description of each can be retrieved by adding ?wsdl to its URL, e.g.:

http://143.233.247.63/users.svc?wsdl

Using an appropriate WSDL parser, a client could automatically infer all the operations supported by the service (their short names and SOAP Actions) as well as XML structures of their request and response messages.

SOAP defines an XML-based message envelope (for use within HTTP POST request as well as within a response to such POST) and presumes an XML-based message content. In its full raw form, this SOAP request has to look as follows (every header line ends with \r\n):

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:ns="http://143.233.247.63">
  <soapenv:Header/>
  <soapenv:Body>
    <ns:LoginUser>
      <ns:username>?</ns:username>
      <ns:password>?</ns:password>
    </ns:LoginUser>
  </soapenv:Body>
</soapenv:Envelope>
```

If everything is fine, the server is expected to respond with HTTP code 200 OK and the response body containing a SOAP message as follows:

```
<s:Envelope xmlns:s="http://schemas.xmlsoap.org/soap/envelope/">
  <s:Body>
    <LoginUserResponse xmlns="http://143.233.247.63">
```

```
      <LoginUserResult
xmlns:a="http://schemas.datacontract.org/2004/07/profoundServices"
xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
        <a:error>
          <a:ErrorCode>0</a:ErrorCode>
          <a:ErrorMessage>Successful</a:ErrorMessage>
        </a:error>
        <a:session>JtmecAMY0JvShmNELNMbPFOa1TgyPoSb</a:session>
      </LoginUserResult>
    </LoginUserResponse>
  </s:Body>
</s:Envelope>
```

Data storage and confidentiality

For the pilot phase of the project the demographics of all the end users (elderly people having a fall event) entered in the APP will be encrypted/pseudonymized in the central data base.

Only the local authenticated/authorised HCP will have access to the personal data. It is considered unlikely that re-assessment will take place within the lifetime of ProFouND. It is expected that after the web based APP will be tested and validated, desktop application will be developed that can be downloaded in the PC/tablet/smartphone of the professional allowing them to keep the personal patient data in their devices according to the local standards for data safety and protection

4.4 Development of the leaflets

A word document will be generated as an output, so that an adjustment is possible (e. g. include some extra results of another assessment, contact data of a group, the name of the person assessed (personalised), etc.). On the left side the answers of the interviewed person are summarised. On the right side the tailored recommendations automatically being generated from the given answers are displayed. To meet the needs of our target group, the font size will be 14 at least and bold. In the following you will find all possible PFPApp-results:

“You reported…”

- “…that you have not fallen during the last 12 months.”
- “…that you had one fall during the last 12 months.”
- “…that you had multiple falls during the last 12 months.”
- “…that you had one or more injurious falls during the last 12 months.”
- “... that you have not experienced any changes in balance over the last 12 months.”
- “...that you have noticed your balance getting worse over the last 12 months.”
- “When we tested your balance, your balance is ok.”
- “When we tested your balance we agree it should be improved.”
- “You have difficulties in getting out of the chair.”
- “…no concern or a little fear of falling.”
- “…quite a lot or considerable fear of falling.”
- “…that you would prefer to exercise in a group.”
- “…that you would prefer to exercise at home.”

- “You have an eye disease.”
- “You have no eye disease.”
- “You take 4 or more different medications.”
- “You take medication acting on the central nervous system.”
- “You take 4 or more different medications and medication acting on the central nervous system.”

As mentioned above tailored recommendations are displayed on the right side of the leaflet. They consist of a compilation of text blocks being triggered depending which answers were given before. In the following you will find all possible text blocks:

Physical Activity
“To stay healthy or to improve health, you need to do two types of physical activity each week: aerobic and muscle-strengthening activity. In a separate leaflet you will find some Physical activity guidelines for older adults.”

Consideration of Physiotherapy
“As you have difficulties in getting off the chair you should consider physiotherapy to improve your strength.”

Cognitive-Behavioural Intervention (single)
“To help you feel more confident in staying steady on your feet and help maintain your independence we would recommend you to do a home-based cognitive-behavioural intervention.”

Cognitive-Behavioural Intervention (group)
“To help you feel more confident in staying steady on your feet and help maintain your independence we would recommend you to do a group-based cognitive-behavioural intervention.”

Group exercise
“To help you feel more confident in staying steady on your feet and help maintain your independence we would recommend you to visit an exercise group which focuses on improving your balance. This could be a strength and balance Falls Management Group (FaME or Otago), a Tai Chi-group or another falls prevention group. If none of the mentioned groups are available, find a senior exercise class, but bear in mind that this class does not necessarily helps you staying steady on the feet. Nevertheless it will help you to stay active and healthy or improve your health.”

Exercise at home
“To help you feel more confident in staying steady on your feet and help maintain your independence we would recommend you to do home exercises, which focus on improving your balance. These could be the Otago strength and balance Exercise Programme or the LiFE strength and balance program. If neither of the mentioned programmes are available, find a physiotherapist to give you a home based programme to enable you to do balance exercises at home.”

Vision information 1
“Low vision, impaired vision, unfamiliar glasses with a new vision correction or impaired vision affected by medication can cause balance problems. As you have had multiple falls within the last 12 months, it is crucial to identify new visual problems. It is also important to check regularly, if your glasses are still appropriate. Therefore we recommend you to see your ophthalmologist or optometrist every a year.”

Vision information 2

“Low vision, impaired vision, unfamiliar glasses with a new vision correction or impaired vision affected by medication can cause balance problems. As you have had multiple falls within the last 12 months, it is crucial to identify new visual problems. We recommend you to see your ophthalmologist or optometrist at least every 3 years.”

Vitamin D and bone health

“Vitamin D is essential for keeping bones strong – the best source is sunshine. Try going outside without sunscreen for a few minutes around lunchtime every day during summer. Take care not to let your skin redden or burn. Some foods such as oily fish or eggs also provide vitamin D. A balanced diet rich in calcium will also help to keep your bones strong. You can find calcium in milk and dairy foods such as cheese and yoghurt, fortified soya products and canned fish. Discuss bone health interventions (such as additional vitamin D and calcium intake) and a bone density measurement with a specialist. This might be your general practitioner, a geriatrician or an orthopedist. Additionally it is recommended to do weight bearing exercise and strength training to strengthen bone.”

Medication referral

“Certain medicines can make you feel faint or affect your balance. Ask your general practitioner, a geriatrician or a pharmacist about this matter. They may want to change your dose or look at alternatives.”

Home modification information

“Make sure your home is hazard-free and well lit. Organise your things so that you’re not at risk of tripping over any wires, clutter or loose or frayed carpets. Ask an occupational therapists for advice.”

In the following you will find an example for the inner pages (p. 2 and p.3) of a leaflet, which might have been generated from the textblocks of the No falls-scenario:

In the following report you will find the most important results of your assessment day:

You reported…

…that you have not fallen during the last 12 months.

...that you have noticed your balance getting worse over the last 12 months.

…quite a lot or considerable fear of falling.

…that you would prefer to exercise in a group.

When we tested your balance, your balance is ok.

Your objective balance is satisfactory.

____

____

____

____

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____

____

Based on the results of our assessment today I would give you the following recommendations:

To help you feel more confident in staying steady on your feet and help maintain your independence I would recommend you to do a group-based cognitive-behavioural intervention.

____

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____

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____

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____

Signature and name of the health care professional

5 Perspectives for 2015 and 2016

It is expected that with the iteration cycles and non-ProFouND HCPs using the PFPApp there will be advice and criticism to improve the App. We plan to update it every 3 months (to be discussed) or even sooner if a major change needs to be made. A list of frequent questions will be collected over the next month to facilitate the use and uptake. Expected example: e.g. is the APP suitable for older persons suffering from dementia and other neurodegenerative disease?
Answer: at this stage we do not see any convincing evidence to exclude demented patients or patients with Parkinsons' disease from this procedure.

The DoW planned at least translation to at least 2-3 other European languages. These will be German, Norwegian and Greek.

Depending on uptake and evaluation further versions for other settings and direct usage for patients might be developed.

Evaluation will include number of entries, countries, gender, age of subjects entered. Other items will include scenarios and printed leaflets.

At this stage no pictures or images are included. This will be a task for the update as we want to ensure the images are acceptable to older people.

For the first version we did not consider that the given recommendations will depend on the background of the HCP but will depend on the available local options.

The next version will also include medical terms a pop-up manual.

6 Attachements

Internal meeting

- 9th January 2014
- Internal research associates (3 sports scientists, 2 physicians, 2 psychologists, 1 gerontologist, 1 epidemiologist) therapists (1 physiotherapist, 1 occupational therapist) guests (physicians from Switzerland)
- Content: Definition of PFPApp-contents, definition of leaflet-contents

App-Contents:

- Background information regarding the health care professional:
  General practitioner, physiotherapist…

- Background information of older person being interviewed:
  Age, gender, postcode

- The PFPApp-questions should cover the following contents:
- Function (e. g. falls, Injury due to a fall, use of a walking aid)
- Subjective Balance
- Vision (e. g. last examination by an optician, poor vision, wearing glasses, age related macular degeneration)
- Medication (e. g. number of different medication, sedative)
- Environment
- Comorbidity (e. g. Parkinson ’s disease)
- Cognition
- Mobility (e. g. ability to leave the home? Ability to go to a social event)
- Bone health (e. g. fracture, results of bone density evaluation
- Fear of falling
- Auditory system

Leaflet contents:

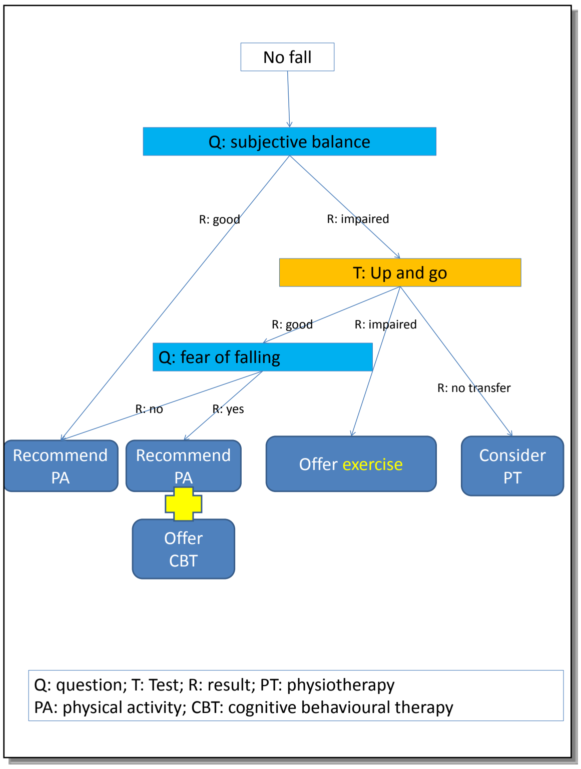
The leaflets should include links to literature, websites, videos and contact persons.
The leaflets should give recommendations regarding the following contents: Exercises (e. g. Otago, FaME, Tai Chi, LiFE), medication, environment, vision, protective clothing (e. g. Hip protectors), vitamin D, footwear

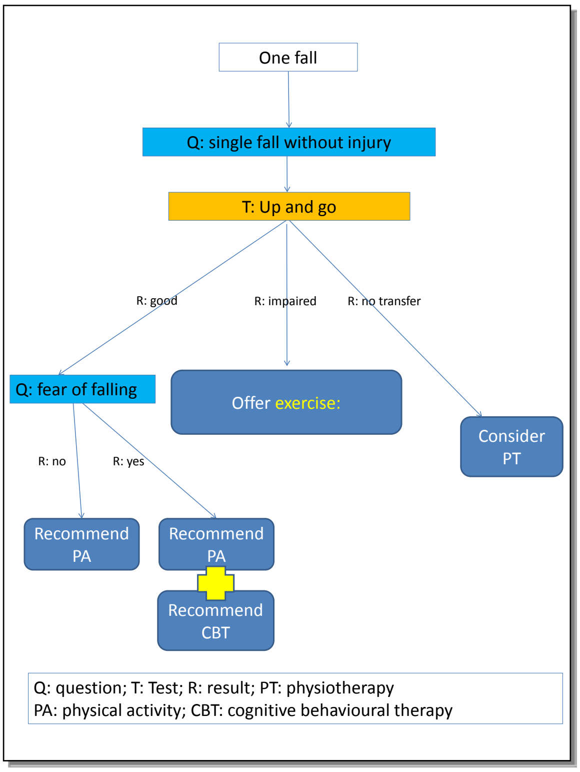
To be discussed:
Should we involve country?
Available options are site-specific: How do we handle this?

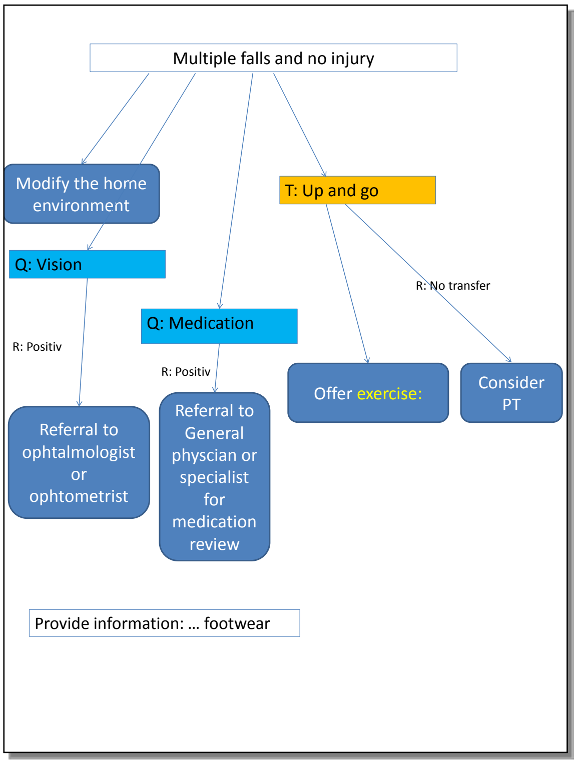
PFPApp-Workshop at the ProFouND Partnership meeting in Barcelona:

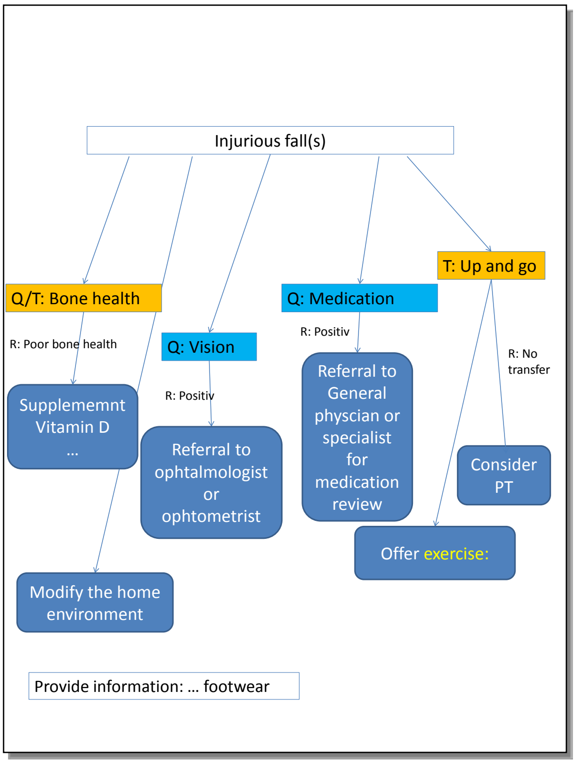
- 12th March 2014
- All partners involved
- Content: Update partners about current version of PFPApp falls scenarios

First versions of the PFPApp falls scenarios:

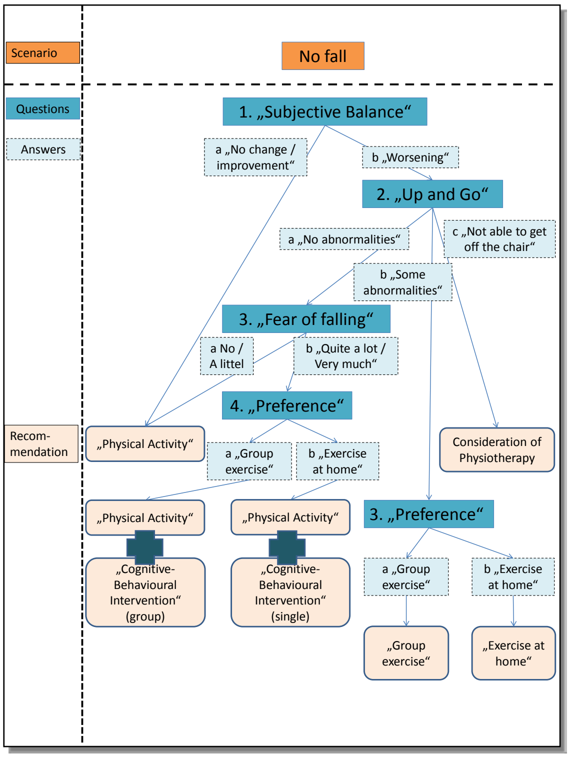

No fall
Q: subjective balance
R: good
R: impaired
T: Up and go
R: good
R: impaired
Q: fear of falling
R: no transfer
R: no
R: yes
Recommend PA
Recommend PA
Offer exercise
Consider PT
Offer CBT
Q: question; T: Test; R: result; PT: physiotherapy
PA: physical activity; CBT: cognitive behavioural therapy

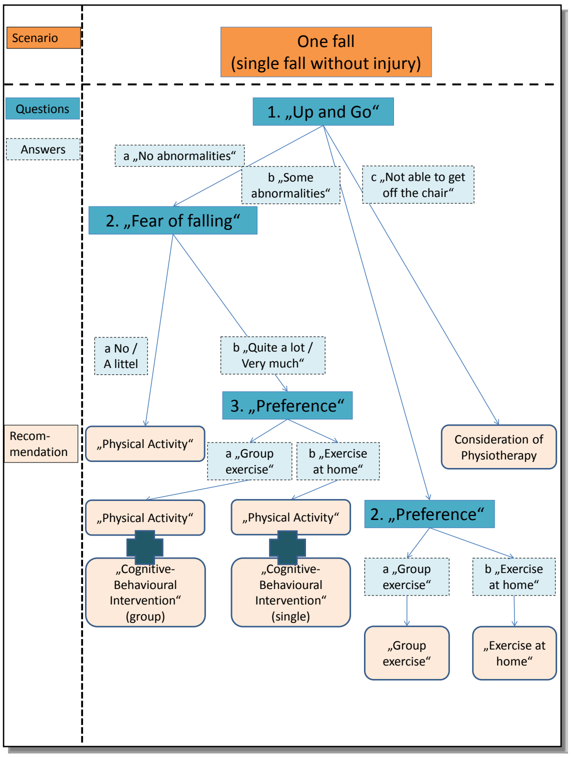

One fall
Q: single fall without injury
T: Up and go
R: good
R: impaired
R: no transfer
Q: fear of falling
Offer exercise:
Consider PT
R: no
R: yes
Recommend PA
Recommend PA
Recommend CBT
Q: question; T: Test; R: result; PT: physiotherapy
PA: physical activity; CBT: cognitive behavioural therapy

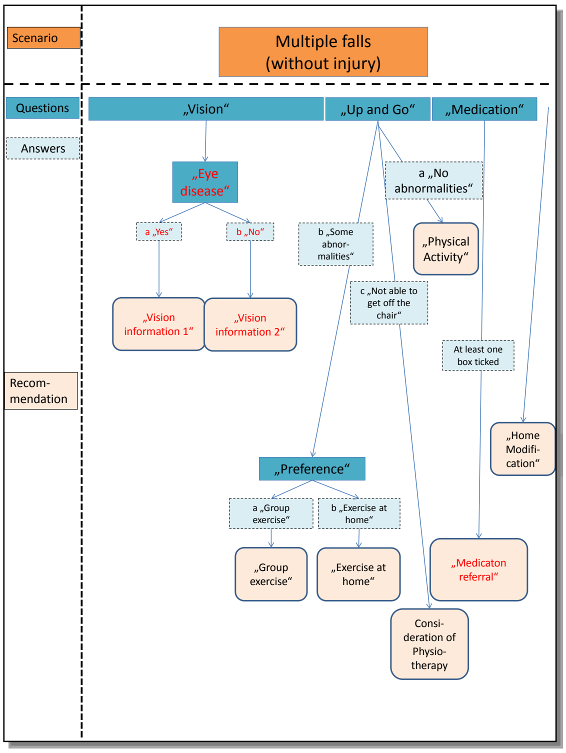

Multiple falls and no injury
Modify the home environment
T: Up and go
Q: Vision
R: No transfer
Q: Medication
R: Positiv
R: Positiv
Offer exercise:
Consider PT
Referral to ophtalmologist or ophtometrist
Referral to General physcian or specialist for medication review
Provide information: … footwear

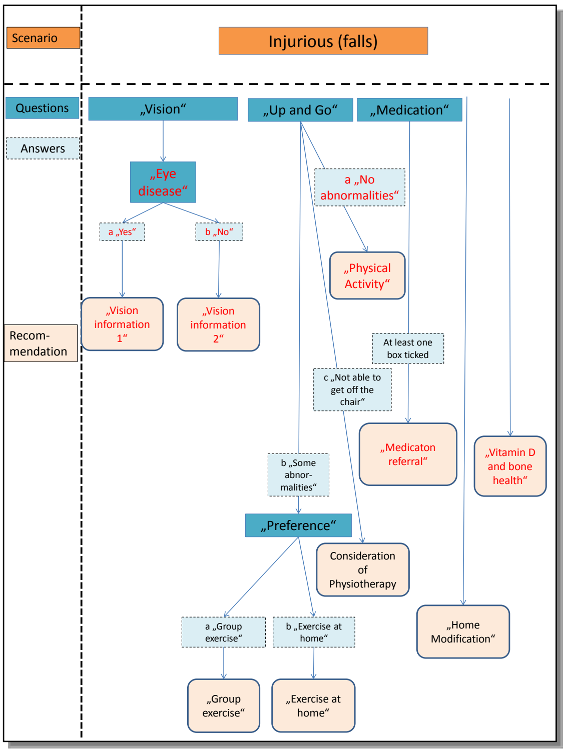

Injurious fall(s)
T: Up and go
Q/T: Bone health
Q: Medication
R: Poor bone health
Q: Vision
R: Positiv
R: No transfer
Supplememnt Vitamin D …
R: Positiv
Referral to General physcian or specialist for medication review
Referral to ophtalmologist or ophtometrist
Consider PT
Offer exercise:
Modify the home environment
Provide information: … footwear

Modified current versions of the PFPApp falls scenarios:

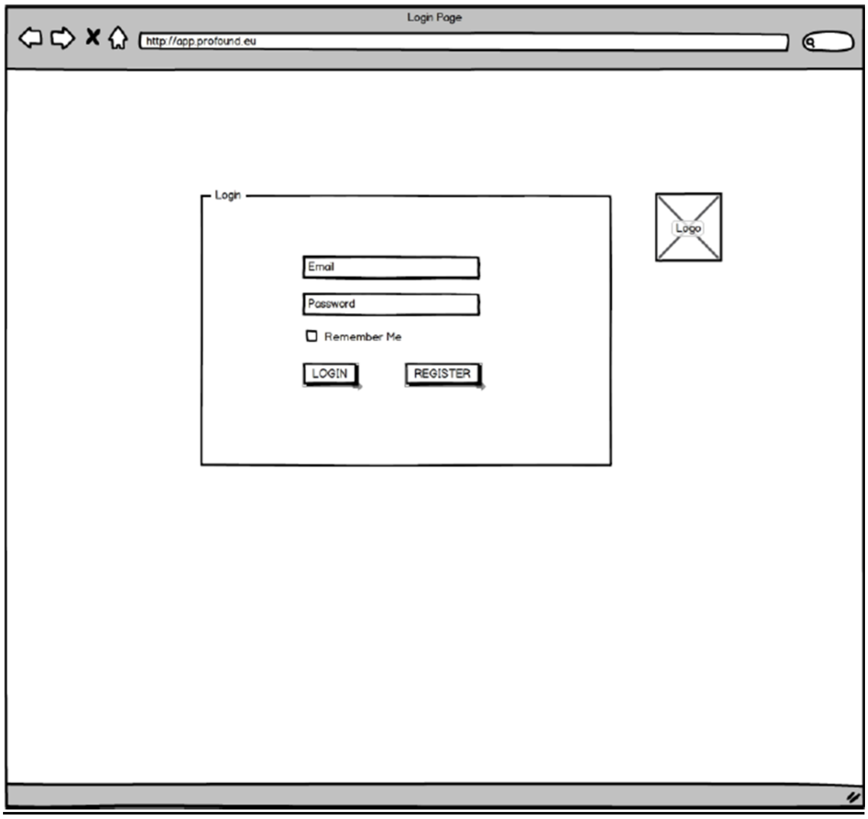

Scenario
No fall
Questions
Answers
1. „Subjective Balance“
a „No change / improvement“
b „Worsening“
2. „Up and Go“
a „No abnormalities“
c „Not able to get off the chair“
b „Some abnormalities“
3. „Fear of falling“
a No / A littel
b „Quite a lot / Very much“
4. „Preference“
Recom-mendation
„Physical Activity“
a „Group exercise“
b „Exercise at home“
Consideration of Physiotherapy
„Physical Activity“
„Physical Activity“
3. „Preference“
„Cognitive-Behavioural Intervention“ (group)
„Cognitive-Behavioural Intervention“ (single)
a „Group exercise“
b „Exercise at home“
„Group exercise“
„Exercise at home“

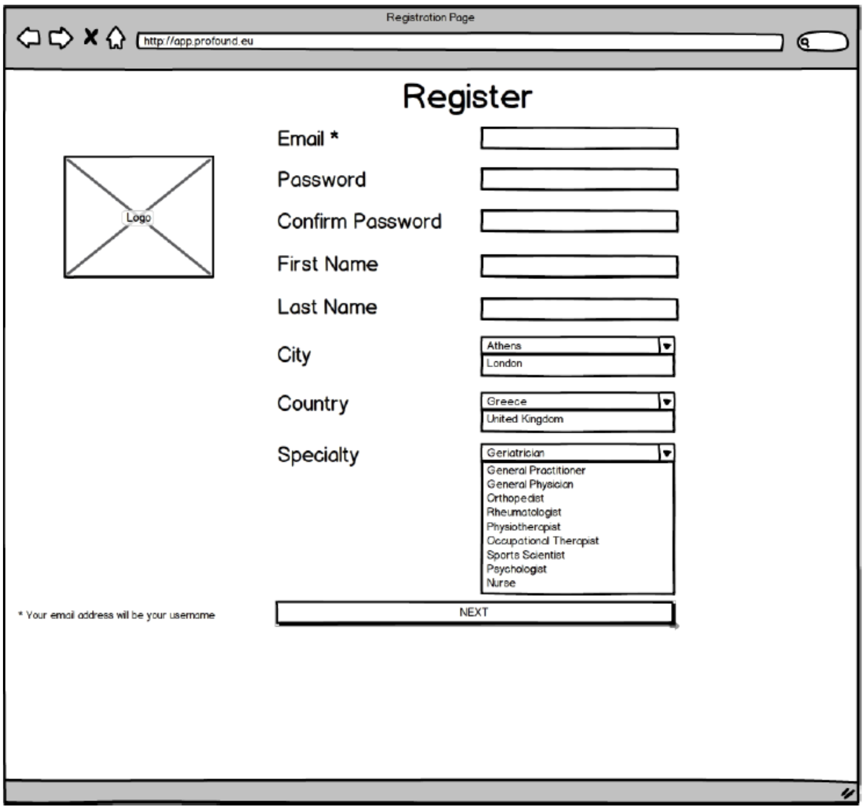

Scenario
One fall (single fall without injury)
Questions
Answers
1. „Up and Go“
a „No abnormalities“
b „Some abnormalities“
c „Not able to get off the chair“
2. „Fear of falling“
a No / A littel
b „Quite a lot / Very much“
3. „Preference“
Recom-mendation
„Physical Activity“
a „Group exercise“
b „Exercise at home“
Consideration of Physiotherapy
„Physical Activity“
„Physical Activity“
2. „Preference“
„Cognitive-Behavioural Intervention“ (group)
„Cognitive-Behavioural Intervention“ (single)
a „Group exercise“
b „Exercise at home“
„Group exercise“
„Exercise at home“

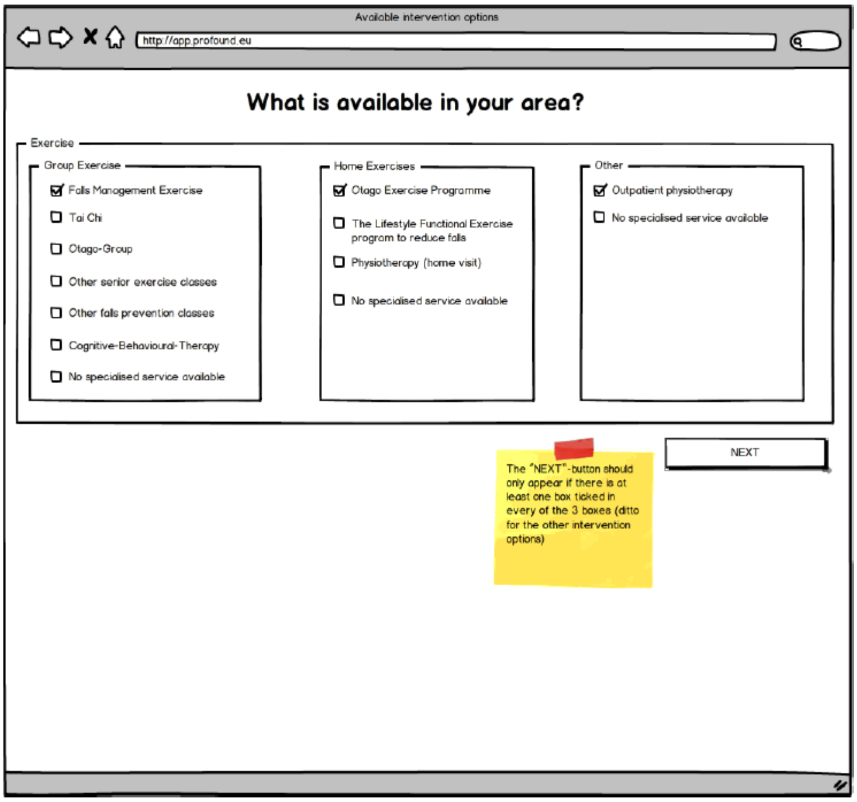

Scenario
Multiple falls (without injury)
Questions
Answers
„Vision“
„Up and Go“
„Medication“
„Eye disease“
a „No abnormalities“
a „Yes“
b „No“
b „Some abnor-malities“
„Physical Activity“
c „Not able to get off the chair“
„Vision information 1“
„Vision information 2“
At least one box ticked
Recom-mendation
„Home Modifi-cation“
„Preference“
a „Group exercise“
b „Exercise at home“
„Group exercise“
„Exercise at home“
„Medicaton referral“
Consi-deration of Physio-therapy


Scenario
Injurious (falls)
Questions
Answers
„Vision“
„Up and Go“
„Medication“
„Eye disease“
a „No abnormalities“
a „Yes“
b „No“
„Physical Activity“
Recom-mendation
„Vision information 1“
„Vision information 2“
At least one box ticked
c „Not able to get off the chair“
„Medicaton referral“
„Vitamin D and bone health“
b „Some abnor-malities“
„Preference“
Consideration of Physiotherapy
a „Group exercise“
b „Exercise at home“
„Home Modification“
„Group exercise“
„Exercise at home“

Wireframes:


Login Page
http://app.profound.eu
Login
Logo
Email
Password
☐ Remember Me
LOGIN
REGISTER


Registration Page
http://app.profound.eu
Register
Logo
Email *
Password
Confirm Password
First Name
Last Name
City
Athens
London
Country
Greece
United Kingdom
Specialty
Geriatrician
General Practitioner
General Physician
Orthopedist
Rheumatologist
Physiotherapist
Occupational Therapist
Sports Scientist
Psychologist
Nurse
* Your email address will be your username
NEXT


Available intervention options
http://app.profound.eu
NEXT

What is available in your area?

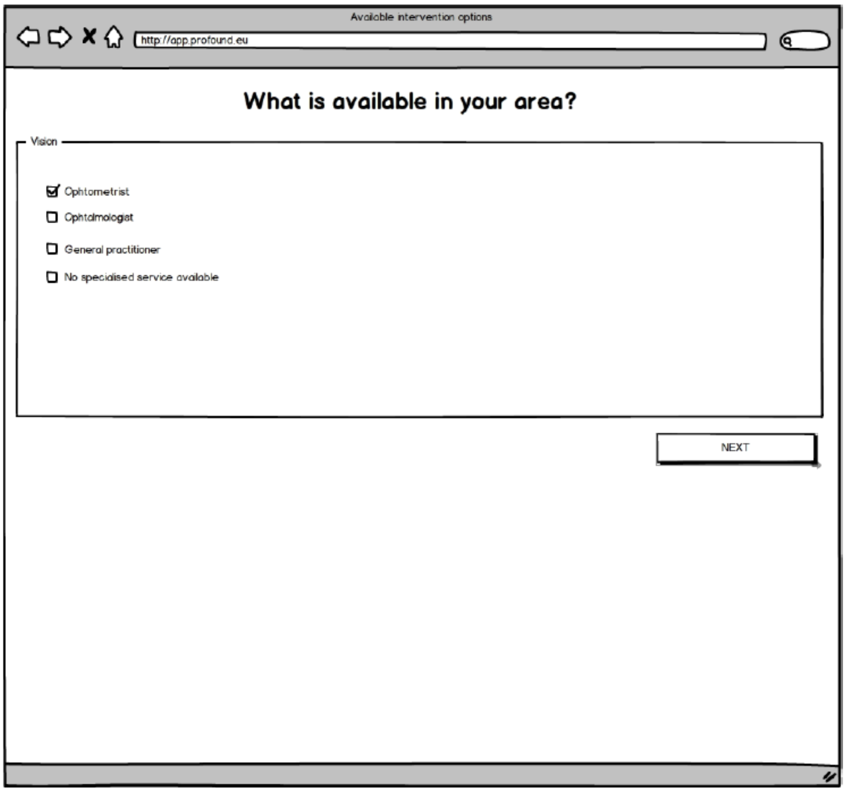
Exercise

Group Exercise
- ☑ Falls Management Exercise
- ☐ Tai Chi
- ☐ Otago-Group
- ☐ Other senior exercise classes
- ☐ Other falls prevention classes
- ☐ Cognitive-Behavioural-Therapy
- ☐ No specialised service available

Home Exercises
- ☑ Otago Exercise Programme
- ☐ The Lifestyle Functional Exercise program to reduce falls
- ☐ Physiotherapy (home visit)
- ☐ No specialised service available

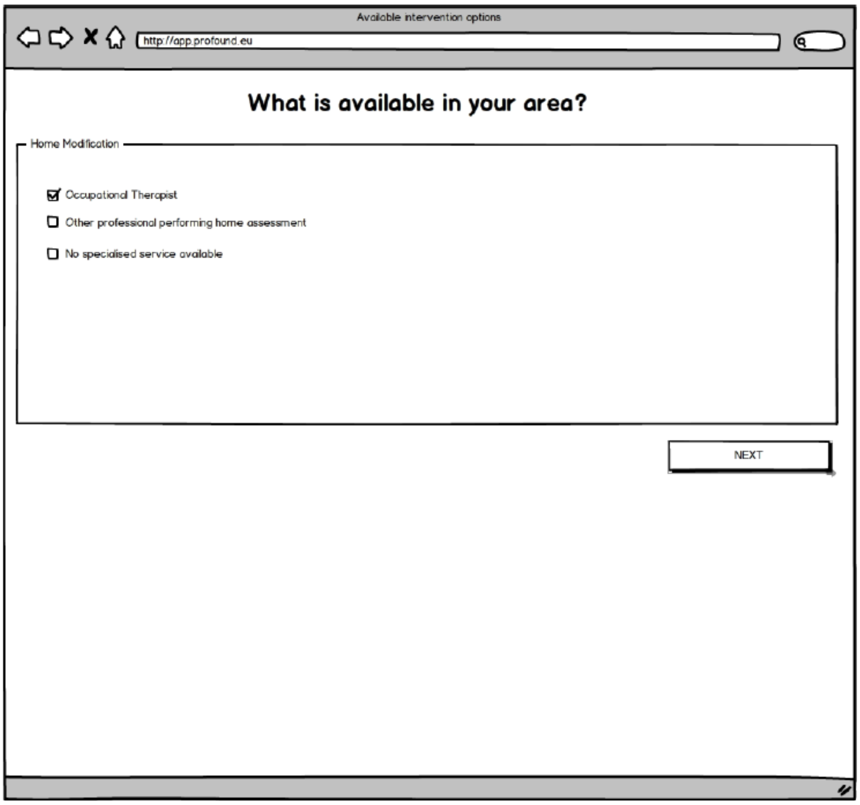
Other
- ☑ Outpatient physiotherapy
- ☐ No specialised service available

The "NEXT"-button should only appear if there is at least one box ticked in every of the 3 boxes (ditto for the other intervention options)


Available intervention options
http://app.profound.eu
NEXT

What is available in your area?

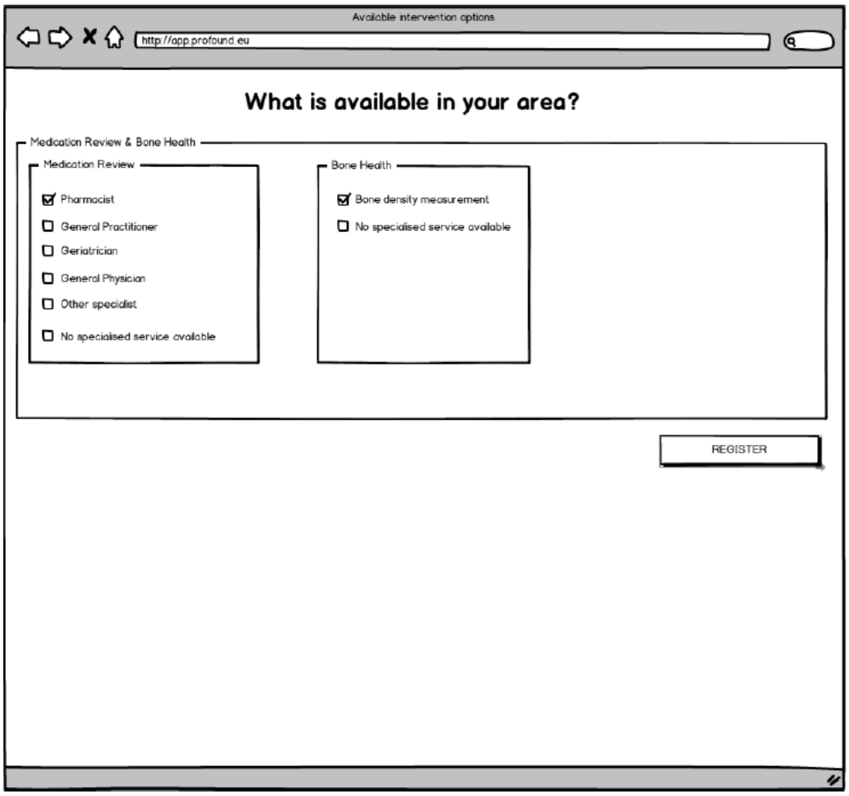
Vision
- ☑ Ophtometrist
- ☐ Ophtalmologist
- ☐ General practitioner
- ☐ No specialised service available


Available intervention options
http://app.profound.eu
NEXT

What is available in your area?

Home Modification

- ☑ Occupational Therapist
- ☐ Other professional performing home assessment
- ☐ No specialised service available


Available intervention options
http://app.profound.eu
REGISTER

What is available in your area?

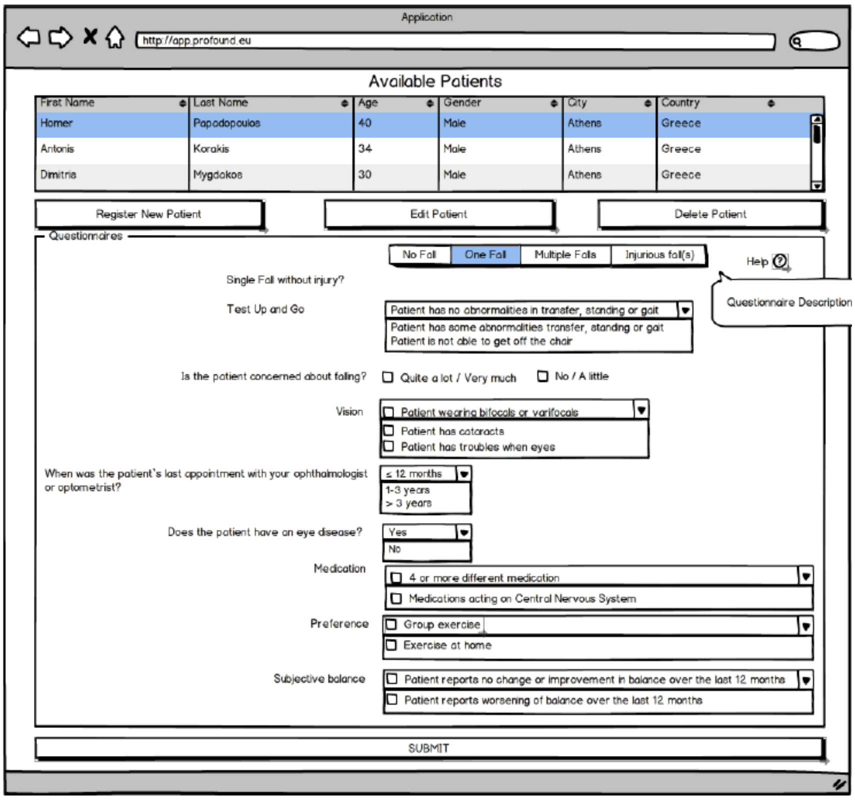
Medication Review & Bone Health

Medication Review

- ☑ Pharmacist
- ☐ General Practitioner
- ☐ Geriatrician
- ☐ General Physician
- ☐ Other specialist
- ☐ No specialised service available

Bone Health

- ☑ Bone density measurement
- ☐ No specialised service available


Application
http://app.profound.eu
Register New Patient
Edit Patient
Delete Patient
Questionnaires
No Fall
One Fall
Multiple Falls
Injurious fall(s)
Help
Questionnaire Description
SUBMIT

Available Patients

First Name	Last Name	Age	Gender	City	Country
Homer	Papadopoulos	40	Male	Athens	Greece
Antonis	Korakis	34	Male	Athens	Greece
Dimitris	Mygdakos	30	Male	Athens	Greece

Single Fall without injury?

Test Up and Go: Patient has no abnormalities in transfer, standing or gait
Patient has some abnormalities transfer, standing or gait
Patient is not able to get off the chair

Is the patient concerned about falling? ☐ Quite a lot / Very much ☐ No / A little

Vision: ☐ Patient wearing bifocals or varifocals
☐ Patient has cataracts
☐ Patient has troubles when eyes

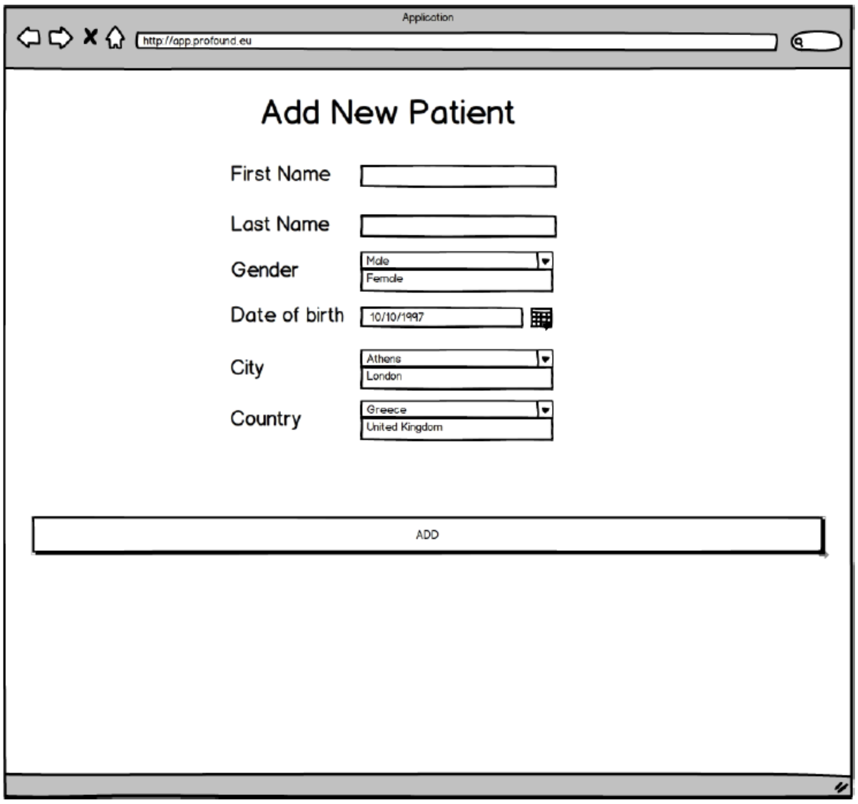
When was the patient's last appointment with your ophthalmologist or optometrist? ≤ 12 months
1-3 years
> 3 years

Does the patient have an eye disease? Yes
No

Medication: ☐ 4 or more different medication
☐ Medications acting on Central Nervous System

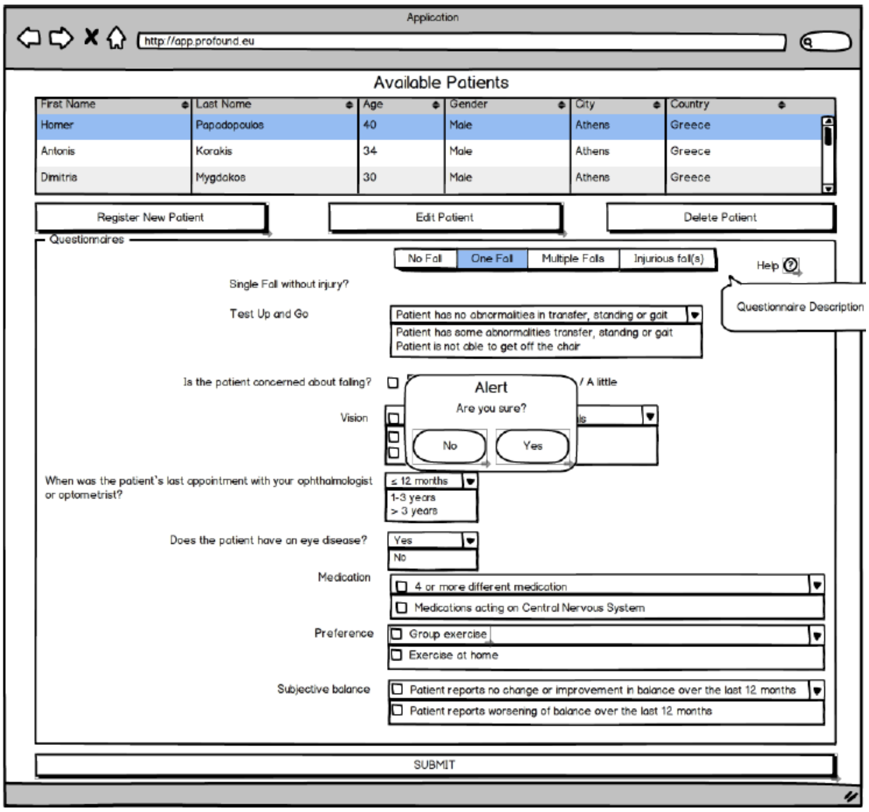
Preference: ☐ Group exercise
☐ Exercise at home

Subjective balance: ☐ Patient reports no change or improvement in balance over the last 12 months
☐ Patient reports worsening of balance over the last 12 months


Application
http://app.profound.eu
ADD

Add New Patient

First Name:
Last Name:
Gender: Male
Female
Date of birth: 10/10/1997
City: Athens
London
Country: Greece
United Kingdom



Application
http://app.profound.eu
Register New Patient
Edit Patient
Delete Patient
Questionnaires
No Fall
One Fall
Multiple Falls
Injurious fall(s)
Help
Questionnaire Description
Alert
Are you sure?
No
Yes
SUBMIT

Available Patients

First Name	Last Name	Age	Gender	City	Country
Homer	Papadopoulos	40	Male	Athens	Greece
Antonis	Korakis	34	Male	Athens	Greece
Dimitris	Mygdakos	30	Male	Athens	Greece

Single Fall without injury?

Test Up and Go: Patient has no abnormalities in transfer, standing or gait
Patient has some abnormalities transfer, standing or gait
Patient is not able to get off the chair

Is the patient concerned about falling? ☐ / A little

Vision ☐ ☐ ☐

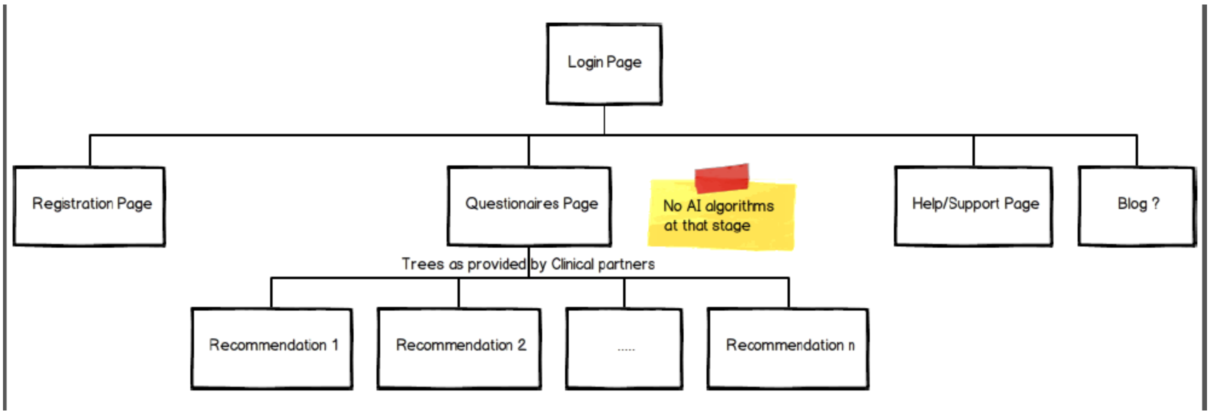
When was the patient's last appointment with your ophthalmologist or optometrist? ≤ 12 months
1-3 years
> 3 years

Does the patient have an eye disease? Yes
No

Medication
☐ 4 or more different medication
☐ Medications acting on Central Nervous System

Preference
☐ Group exercise
☐ Exercise at home

Subjective balance
☐ Patient reports no change or improvement in balance over the last 12 months
☐ Patient reports worsening of balance over the last 12 months



Login Page
Registration Page
Questionaires Page
No AI algorithms at that stage
Help/Support Page
Blog ?
Trees as provided by Clinical partners
Recommendation 1
Recommendation 2
.....
Recommendation n