Supplemental material

Table 1: Functions from the Functional Resonance Analysis Method (FRAM) model Limburg

| Function* | Description of function | Variability |
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| 1a. To identify indications for | The indication for initial compression therapy in the acute phase after a | Variations occur since GPs are not always aware of the treatment |
| initial compression therapy | diagnosis of DVT is made by the GP at the general practice or the internist in | indications for initial compression therapy in patients without |
| (internist/GP) | the ER. | edema. Patients are then directly referred to the medical stocking |
| | | supplier for definitive ECS without initial compression therapy. |
| | | The result of omitting initial compression therapy is a delay in the |
| | | onset of compression therapy and preventing function 3b from |
| | | occurring. |
| 1b. To identify indications for | The indication for initial compression therapy after a diagnosis of CVI can be | Variation is not mentioned due to the use of clear protocols and |
| initial compression therapy | made by the GP or the dermatologist. Thereafter the physician informs the | similarities in recommendations. |
| (dermatologist/GP) | doctor's assistant to apply the multilayer compression bandages. | |
| 2. To consider and choose initial | When the indication for compression therapy is made, the treating physician | Variations occur since internists and GPs are using different |
| compression therapy | (GP/internist) needs to decide what type of initial compression therapy is | protocols. GPs are not always aware of the different possibilities |
| (internist/GP) | indicated. The GP chooses multilayer compression bandages, based on the | for initial compression therapy and there is a lack of detailed |
| | NHG-standard, and informs the doctor's assistant to apply them. The internist | information in their current guideline (NHG-standard). Patients |
| | chooses a temporary compression hosiery unless there are contra-indications | automatically become dependent on home care or need to visit the |
| | and informs the ER nurse to apply them. If contra-indications exist, the | outpatient clinic for the application of the multilayer compression |
| | internist chooses multilayer compression bandages based on the DVT- | bandages. This affects function 6a-c. |
| | protocol and contacts the bandage master to apply them. | |
| 3a. To apply the temporary | The ER nurse measures the leg circumference at different places and | Variation occurs based on the nurses' experience to apply the |
| compression hosiery and give | determines the requested size for the temporary compression hosiery. | temporary compression hosiery, give instructions, and the |
| instructions (ER nurse) | Thereafter the nurse fits the hosiery and instructs the patient on how to apply | knowledge of their role and responsibilities in the process. Thereby |

| | it independently at home using a disposable donning slide which the patient | time constraints may affect the extent of the patient's instruction. |
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| | can take home. Thereafter the nurse informs the internist. | This may affect function 6a. |
| 3b. To apply the multilayer | In the general practice and at the dermatology department, the doctor's | Variation occurs when there is no doctor's assist with the |
| compression bandages (doctor's | assistant applies the multilayer compression bandages. In the ER, the ER | appropriate experience and/or room available to apply the |
| assistant/bandage master) | nurse contacts the bandage master to apply the bandages within office hours. | multilayer compression bandages. Thereby, the bandage master is |
| | Afterward, the nurse/doctor's assistant informs the physician. | only available to apply the bandages within office hours in the ER. |
| | | Outside office hours, home care is arranged for the next day. Both |
| | | these variabilities could lead to a delay in the onset of initial |
| | | compression. |
| 4. To instruct when to call the | The internist instructs the patient when to call the medical stocking supplier to | The quality of instructions can vary based on a lack of time due to |
| medical stocking supplier | schedule an appointment to fit the definitive ECS when edema has | other patientcare related duties and the experience of the internist. |
| (internist) | disappeared. | This may affect function 6a. |
| 5. To give information and | The treating physician informs the patient about the aim of the compression | Variation occurs since some GPs are not aware that a referral is |
| perform administration | therapy. Then the physician performs administrative tasks including: | necessary for the medical stocking supplier to start function 8. |
| (physician) | 1. Prescribing a referral for the definitive ECS | |
| | 2. Planning a follow-up appointment | Variability is reduced by the availability of the DVT-envelope in |
| | 3. Contacting the home care organization if necessary | the ER, which contains all the necessary pre-completed forms to |
| | 4. Prescribing multilayer compression bandages if necessary. The patient | perform administration. |
| | collects the materials at the pharmacy. | |
| | 5. Additionally, the internist and dermatologist need to write a patient letter to | |
| | inform the GP. | |
| 6a. To apply the temporary | The patient applies the temporary hosiery self-reliantly at home based on | Variability occurs based on the adherence and accuracy of |
| compression hosiery self- | instructions given at the ER. Thereby, the patient needs to check if the leg is | applying the temporary compression hosiery and the awareness of |
| reliantly (patient) | still containing edema. | the patient to assess if the leg is still containing edema and how to |
| | | assess this. When the hosiery is not applied or not applied |

| | | correctly, this could lead to a delay in disappearing edema and a |
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| | | delay in downstream functions. This affects function 7 and 8. |
| 6b. To perform an intake and | When the physician contacts the home care organization, a nurse contacts the | Variability occurs since multilayer compression bandages are |
| apply the temporary | patient and arranges an appointment on the same day or the day after to | regularly incomplete when the home care nurse visits the patient at |
| compression hosiery/multilayer | perform an intake. The nurse makes a care plan and plans home visits. The | the intake appointment, the nurse needs to call the treating |
| compression bandages (home | compression materials must be complete and present at the patient's home. | physician to arrange the missing materials causing a delay of the |
| care nurse) | | function itself. |
| 6c. To apply the multilayer | Patients using multilayer compression bandages prescribed by the | Variability occurs when there is no doctor's assistant/nurse or |
| compression bandages at the | GP/dermatologist can visit the outpatient clinic twice a week to have them | room available to deliver care twice a week. This could result in a |
| outpatient clinic (doctor's | applied. | delay in function 7 and further downstream functions. |
| assistant) | | |
| 7. To contact the medical | When edema has disappeared, the patient is supposed to contact the medical | A delay in function 8 and further downstream functions appears if |
| stocking supplier (patient) | stocking supplier to make an appointment for an intake. This can be initiated | the appointment is made even too late or too early (as a |
| | by either the patient based on the information provided by the internist, the | consequence edema has not yet disappeared and the definitive ECS |
| | GP, or dermatologist when multilayer compression bandages are applied in | cannot be fitted). |
| | the outpatient clinic, or home care when involved. | Variability reduces when home care is involved or the multilayer |
| | | compression bandages are applied in the outpatient clinic, then the |
| | | home care nurse/GP/dermatologist controls this function. |
| 8. To perform an intake | The patient visits the medical stocking supplier. At the intake appointment, | Variation occurs if the referral from the physician is imprecise or |
| (medical stocking supplier) | the medical stocking supplier checks the referral, evaluates the patient based | missing. This delays the function or can lead to variability when |
| | on the intake form, and measures leg size at specific points to select the | the medical stocking supplier adds the missing information based |
| | definitive ECS. Afterward, the medical stocking supplier orders the definitive | on information provided by the patient. This can affect all |
| | ECS and claims the expenses with the insurance company. | downstream functions. |
| | | |

| reliance (medical stocking supplier) is not self-reliant. When patients are not self-reliant with these assistive devices, the occupational therapist is contacted to introduce 'complicated'** assistive devices. When patients are self-reliant with or without using the 'uncomplicated' assistive device, they apply the ECS self-reliantly at home. The medical stocking supplier thereafter claims the expenses of the assistive device with the insurance company. The medical stocking supplier thereafter claims the expenses of the assistive device with the insurance company. The medical stocking supplier thereafter claims the expenses of the assistive device by the insurance. For either of these reasons, the medical stocking supplier can decide not to implement 'uncomplicated' assistive devices but instead refer the patient to the occupational therapist (function 10a) or to advise contacting the home care organization (function 10b). The assess options for self-reliant. The therapist visits the patient and arranges an appointment for an intake visit. The therapist visits the patient and selects an assistive device based on prior experience combined with the needs and possibilities of the patient. The therapist instructs the patient and denonstrates how to be self-reliant using an assistive device with the insurance company. Variation occurs mainly based on the patient's motivation to willingness to learn how to be self-reliant using an assistive device in used. When the patient and manage and the appropriate and exceedingly difficult to train them successfully. Variation occurs mainly based on the experience of the expenses by the insurance. For either of these reasons, the medical stocking supplier on decide not to implement 'uncomplicated' assistive devices but the appropriate on device. Other sources of the expenses by the insurance. For either of these reasons, the medical stocking supplier to an derical stocking supplier on decide not to implement of the expenses by the insurance. For either of these reasons, t | 9. To fit the ECS and assess self- | When the definitive ECS is delivered, a new appointment is made to either fit | Variability in the implementation of 'uncomplicated' assistive |
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| devices, the occupational therapist is contacted to introduce 'complicated'*** assistive devices. When patients are self-reliant with or without using the 'uncomplicated' assistive device, they apply the ECS self-reliantly at home. The medical stocking supplier thereafter claims the expenses of the assistive device with the insurance company. The medical stocking supplier thereafter claims the expenses of the assistive device with the insurance company. The medical stocking supplier can decide not to implement 'uncomplicated' assistive devices but instead refer the patient to the occupational therapist (function 10a) or to advise contacting the home care organization (function 10b). The assess options for self- reliance (occupational therapist) The patients of the patient. The therapist instructs the patient and arranges an assistive device based on prior experience combined with the needs and possibilities of the patient. The therapist instructs the patient and demonstrates how the selected assistive device is used. When the patient learned how to use the assistive device self-reliantly, the therapist reclaims the training device and sends a report to the medical stocking supplier to arrange a new device. When additional practice is necessary, a new appointment is made, or home care is contacted for additional practice. The reassess self-reliance (ergocoach) The reassess self-reliance (ergocoach selects an assistive device based on experience and written instructions in the 'toolbox' available at main home care locations. The toolbox contains different assistive devices. Thereafter, the ergocoach trains | reliance (medical stocking | the ECS and select and train 'uncomplicated'** assistive devices if the patient | devices between medical stocking suppliers occurs mainly due to |
| assistive devices. When patients are self-reliantly at home. The medical stocking supplier thereafter claims the expenses of the assistive device with the insurance company. The medical stocking supplier thereafter claims the expenses of the assistive device with the insurance company. The medical stocking supplier thereafter claims the expenses of the assistive devices but instead refer the patient to the occupational therapist (function 10a) or to advise contacting the home care organization (function 10b). To assess options for self-reliant therapist of the patient and arranges an assistive device based on prior experience combined with the needs and possibilities of the patient. The therapist instructs the patient and demonstrates how the selected assistive device is used. When the patient learned how to use the assistive device self-reliantly, the therapist reclaims the training device and sends a report to the medical stocking supplier to arrange a new device. When additional practice is necessary, a new appointment is made, or home care is contacted for additional practice. To re-assess self-reliance (ergocoach) Patients contact the home care organization when ECS is delivered. The ergocoach ta home care organization when ECS is delivered. The training device and a sends a report to the medical stocking supplier to arrange a new device. When additional practice is necessary, a new appointment is made, or home care is contacted for additional practice. The ergocoach ta home care organization when ECS is delivered. The ergocoach ta home care organization when ECS is delivered. The training device and a sends a report to the medical stocking supplier to arrange a new device. When additional practice is necessary, a new appointment is made, or home care is contacted for additional practice. The regocoach ta home care organization when ECS is delivered. The ergocoach in the ergocoach in the experience of the ergocoach in the experience of the ergocoach in the experience of the ergocoach in the experien | supplier) | is not self-reliant. When patients are not self-reliant with these assistive | time pressure, especially in elderly who often require more training |
| 'uncomplicated' assistive device, they apply the ECS self-reliantly at home. The medical stocking supplier thereafter claims the expenses of the assistive device with the insurance company. 10a. To assess options for self- reliance (occupational therapist) assistive device based on prior experience combined with the needs and possibilities of the patient. The therapist instructs the patient and demonstrates how the selected assistive device is used. When the patient learned how to use the assistive device self-reliantly, the therapist reclaims the training device and sends a report to the medical stocking supplier to arrange a new device. When additional practice is necessary, a new appointment is made, or home care is contacted for additional practice. 10b. To re-assess self-reliance (ergocoach) Patients contact the home care organization when ECS is delivered. The ergocoach selects an assistive device based on experience and written instructions in the 'toolbox' available at main home care locations. The toolbox contains different assistive devices. The regocoach sides in the 'toolbox' available at main home care locations. The toolbox contains different assistive devices. Thereafter, the ergocoach trains | | devices, the occupational therapist is contacted to introduce 'complicated'*** | before they can use the assistive device. Other sources of |
| The medical stocking supplier thereafter claims the expenses of the assistive device with the insurance company. The medical stocking supplier can decide not to implement 'uncomplicated' assistive devices but instead refer the patient to the occupational therapist (function 10a) or to advise contacting the home care organization (function 10b). The therapist visits the patient and arranges an assistive device based on prior experience combined with the needs and possibilities of the patient. The therapist instructs the patient and demonstrates how the selected assistive device is used. When the patient and arrange an assistive device and sends a report to the medical stocking supplier can decide not to implement 'uncomplicated' assistive devices but instead refer the patient to the occupational therapist (function 10b). Variation occurs mainly based on the patient's motivation to willingness to learn how to be self-reliant using an assistive device. If patients are unmotivated, e.g. since they are used to the social contact from home care, it is perceived as exceedingly difficult to train them successfully. The reassess self-reliance (ergocoach) Patients contact the home care organization when ECS is delivered. The ergocoach (a home care nurse specialized in making patients self-reliant) visits the patient and re-assesses options for implementing assistive devices. The ergocoach selects an assistive device based on experience and written instructions in the 'toolbox' available at main home care locations. The toolbox contains different assistive devices. Thereafter, the ergocoach trains | | assistive devices. When patients are self-reliant with or without using the | variability are financial constraints and regulation of coverage of |
| device with the insurance company. device with the insurance company. 'uncomplicated' assistive devices but instead refer the patient to the occupational therapist (function 10a) or to advise contacting the home care organization (function 10b). 10a. To assess options for self-reliance (occupational therapist) Once contacted, the occupational therapist calls the patient and arranges an appointment for an intake visit. The therapist visits the patient and selects an assistive device based on prior experience combined with the needs and possibilities of the patient. The therapist instructs the patient and demonstrates how the selected assistive device is used. When the patient learned how to use the assistive device earlies reclaimtly, the therapist reclaims the training device and sends a report to the medical stocking supplier to arrange a new device. When additional practice is necessary, a new appointment is made, or home care is contact for additional practice. 10b. To re-assess self-reliance (ergocoach) Patients or uncomplicated assistive device and sends are unmotivated, e.g. since they are used to the social contact from home care, it is perceived as exceedingly difficult to train them successfully. Variability can occur based on the experience of the ergocoach in selecting and demonstrating the appropriate assistive device for the specific patient. If the chosen assistive device is unsuitable for the patient, this can affect the output of function 12. | | 'uncomplicated' assistive device, they apply the ECS self-reliantly at home. | the expenses by the insurance. For either of these reasons, the |
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| how the selected assistive device is used. When the patient learned how to use the assistive device self-reliantly, the therapist reclaims the training device and sends a report to the medical stocking supplier to arrange a new device. When additional practice is necessary, a new appointment is made, or home care is contacted for additional practice. 10b. To re-assess self-reliance (ergocoach) Patients contact the home care organization when ECS is delivered. The ergocoach (a home care nurse specialized in making patients self-reliant) visits the patient and re-assesses options for implementing assistive devices. The ergocoach selects an assistive device based on experience and written instructions in the 'toolbox' available at main home care locations. The toolbox contains different assistive devices. Thereafter, the ergocoach trains | | assistive device based on prior experience combined with the needs and | If patients are unmotivated, e.g. since they are used to the social |
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| care is contacted for additional practice. 10b. To re-assess self-reliance Patients contact the home care organization when ECS is delivered. The ergocoach (a home care nurse specialized in making patients self-reliant) visits the patient and re-assesses options for implementing assistive devices. The ergocoach selects an assistive device based on experience and written instructions in the 'toolbox' available at main home care locations. The toolbox contains different assistive devices. Thereafter, the ergocoach trains | | and sends a report to the medical stocking supplier to arrange a new device. | |
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| (ergocoach) ergocoach (a home care nurse specialized in making patients self-reliant) visits the patient and re-assesses options for implementing assistive devices. The ergocoach selects an assistive device based on experience and written instructions in the 'toolbox' available at main home care locations. The toolbox contains different assistive devices. Thereafter, the ergocoach trains | | care is contacted for additional practice. | |
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| The ergocoach selects an assistive device based on experience and written instructions in the 'toolbox' available at main home care locations. The toolbox contains different assistive devices. Thereafter, the ergocoach trains | (ergocoach) | ergocoach (a home care nurse specialized in making patients self-reliant) | selecting and demonstrating the appropriate assistive device for the |
| instructions in the 'toolbox' available at main home care locations. The toolbox contains different assistive devices. Thereafter, the ergocoach trains | | visits the patient and re-assesses options for implementing assistive devices. | specific patient. If the chosen assistive device is unsuitable for the |
| toolbox contains different assistive devices. Thereafter, the ergocoach trains | | The ergocoach selects an assistive device based on experience and written | patient, this can affect the output of function 12. |
| | | instructions in the 'toolbox' available at main home care locations. The | |
| | | toolbox contains different assistive devices. Thereafter, the ergocoach trains | |
| the patient to use assistive devices based on experience, ad-hoc training, and | | the patient to use assistive devices based on experience, ad-hoc training, and | |

| | YouTube instructions. The ergocoach then contacts the regular home care | |
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| | nurses to additionally train the patient in how to use the assistive device | |
| | during a prespecified period. | |
| 10c. To apply the ECS self- | The patient applies the ECS at home daily until the treating physician advises | Variability in output can occur based on the patient's adherence to |
| reliantly (patient) | to stop the treatment. | therapy. If patients do not use the ECS as prescribed or stop the |
| | | therapy on their initiative, this results in an increased risk of |
| | | developing post-thrombotic syndrome in DVT patients and a |
| | | higher risk of developing ulcers in CVI patients. |
| 11. To train the patient (home | Regular home care nurses train the patient twice daily on how to use the | Variation occurs based on time constraints affecting the |
| care nurse) | assistive device self-reliant. This process lasts for an estimated week | extensiveness of the training and the nurse's experience to instruct |
| | (occupational therapist) and two weeks (ergocoach). | and train the patient. Further variation occurs based on the patient's |
| | | motivation and abilities to learn how to use the assistive device |
| | | self-reliantly. This could both affect the duration of the function |
| | | and the outcome of function 12. |
| 12. To evaluate implementation | The ergocoach or occupational therapist evaluates the implementation. | Variability in the availability of the assistive device for the patient |
| (ergocoach/occupational | When the patient learned how to use the assistive device self-reliantly, the | occurs based on differences in reimbursement agreements with |
| therapist) | occupational therapist reclaims the training device and sends a report to the | insurance companies. A delay in function 10c occurs if the |
| | medical stocking supplier to arrange a new device. In patients who required | occupational therapist implements the assistive device since it is |
| | additional training by home care, home care should be continued until the | not directly available to the patient since the therapist has to |
| | assistive device is delivered. The ergocoach can leave the assistive device | reclaim the assistive device and order a new device. |
| | with the patient and stops home care. When the assistive device is not | |
| | successfully implemented, home care needs to continue for the duration of | |
| | therapy. | |

| 13. To deliver assistive devices | When a suitable assistive device is selected, medical stocking suppliers claim | Variability occurs since the requirements for reimbursements |
|----------------------------------|--|---|
| (medical stocking supplier) | the expenses with the patient's insurance company. Therefore, they need to | different insurance companies have are variable. This can result in |
| | deliver a declaration along with a report from the occupational therapist (for | a delay in the function itself and function 10c if the claim is not |
| | more expensive assistive devices) and an indication letter from the GP. | submitted correctly. |
| | Assistive devices are usually delivered between 1-14 days depending on the type. | Further variation occurs when the GP does not directly respond to a referral request. The medical stocking supplier than cannot claim the expenses and deliver the assistive device. This results in a delay in the function itself and function 10c. |
| 14a. To perform follow-up | The internist performs standard follow-up appointments after three weeks, | Variability can occur based on the experience of the internist in |
| (internist) | three months, six months, one year, and two years based on the 'clinical | using the Villalta score. When the Villalta score is not used |
| | pathway DVT'. At each appointment, the internist checks the progress of the | correctly, the patient might get incorrect advice to either stop or |
| | process, compliance to therapy, and determines a Villalta score. The Villalta | continue ECS therapy. |
| | score is a scoring system to assess the presence of post-thrombotic syndrome. | |
| | The internist advises the patient to stop ECS therapy if the Villalta score is | Variability in activities performed at the follow-up appointments |
| | four or less at two consecutive visits. The internist writes a patient letter to | and the frequency of these appointments is reduced using the |
| | inform the GP if changes in medical approaches are made and at the end of | clinical pathway. |
| | follow-up. | |
| 14b. To perform follow-up (GP) | If the GP has diagnosed the DVT, a standard follow-up appointment is | Variation can occur when patients do not adhere to therapy, this |
| | planned after a few days to check the progress and compliance to therapy. | can result in adjustments of follow-up or duration of therapy. |
| | Further follow-up is planned a few weeks after diagnosis and at the end of the | Variation is reduced due to clear recommendations regarding |
| | pharmacological therapy. The GP advises the patient to stop the ECS after | follow-up appointments in the NHG-standard. |
| | one year, when complaints re-occur the GP advises to resume ECS therapy | |
| | for another year based on their national guideline (NHG-standard). | |
| 14c. To perform follow-up | The dermatologist performs a follow-up visit after a few weeks. Further | Variation in follow-up occurs since it is mainly based on personal |
| (dermatologist/GP) | follow-up appointments are only planned in patients with expected problems. | preferences and experiences. |

| When the dermatologist does not expect problems, a patient letter is sent to | |
|---|--|
| the GP including the advice to perform a follow-up visit. Some GPs | |
| standardize this follow-up visit whereas others rely on the patient's | |
| responsibility to alert them if problems exist. Both the dermatologist and GP | |
| advise the patient to wear ECS for life. | |

^{*} The numbers of the functions refer to figure 2

Abbreviations: GP = general practitioner, DVT = deep venous thrombosis, ECS = elastic compression therapy, CVI = chronic venous insufficiency, NHG = nederlands huisartsen genootschap (Dutch general practitioner society), ER = emergency room

^{**} Uncomplicated assistive devices: e.g. resistance reducing assistive devices and cuffs and cones

^{***} Complicated assistive devices: e.g. arm extending devices, frames, and ECS pistol

Table 2: Functions from the Functional Resonance Analysis Method (FRAM) model North-Holland

| Function* | Description of function | Variability |
|---|--|---|
| 1a. To identify indications for initial | The indication for initial compression therapy in the acute phase after a | Variations occurred since the two hospital locations were using different |
| compression therapy (internist) | diagnosis of DVT is made by the internist, either at the emergency | protocols with different recommendations regarding initial compression |
| | department (hospital location A) or the outpatient clinic (hospital | therapy until one month ago. A new protocol was designed covering both |
| | location B). At hospital location A, all patients are treated with initial | locations. However, this protocol is lacking information regarding initial |
| | compression therapy by default. | compression therapy. This results in internists relying on their own |
| | At hospital location B, initial compression therapy is omitted by default. | experiences and clinical judgment to estimate if (initial) compression |
| | Even definitive ECS therapy can be omitted in selected patients without | therapy is necessary. This places patients at risk for not being treated with |
| | complaints and no edema. | initial compression therapy and/or definitive compression. Patients at |
| | | hospital location B are directly referred to the medical stocking supplier |
| | | (function 12) or follow-up (function 18a) if even definitive ECS therapy |
| | | is omitted, preventing the intermediate functions from occurring. |
| 1b. To identify indications for | The indication for initial compression therapy after a diagnosis of CVI | Variation regarding the type of initial compression therapy between the |
| initial compression therapy | is made by the dermatologist or the GP. The dermatologist informs the | dermatologist and the GP occurs since the implementation of adjustable |
| (dermatologist/GP) | doctor's assistant to apply multilayer compression bandages while the | compression devices by home care organizations only comprises the |
| | GP contacts the home care organization to initiate therapy using | general practice. |
| | adjustable compression devices. | |
| 2. To consider and choose initial | When the indication for compression therapy in DVT patients is made, | At hospital location A, this function may vary based on pressure at the |
| compression therapy (internist) | the internist needs to decide what type of initial compression therapy is | ward and experience of the internist. |
| | indicated. At hospital location A, the internist chooses a temporary | |
| | compression hosiery unless there are contra-indications based on the | |
| | developed DVT-protocol. If multilayer compression bandages are | |
| | chosen, the internist asks the ER nurse to apply the multilayer | |
| | | |

| | compression bandages. In most cases, an ER nurse with the right skills | |
|------------------------------------|--|--|
| | and experience is available. In other cases (within office hours) the | |
| | internist calls the dermatology department to apply multilayer | |
| | compression bandages. | |
| 3a. To apply the temporary | See function 3a FRAM model region Limburg. | Time constraints may affect the extent of patient instruction, affecting |
| compression hosiery and give | Instead of using a disposable donning slide, the ER nurses use a non- | function 6a. |
| instructions (ER nurse) | disposable donning slide which may not be taken home by the patient. | |
| | The ER nurse instructs the patient to buy the slide at the home care | |
| | shop. | |
| 3b. To apply the multilayer | The ER nurse, doctor's assistant at the dermatology department, or | Variation occurs if the professional responsible for applying the |
| compression bandages (ER | bandage master applies multilayer compression bandages. | multilayer compression bandages is occupied, this prevents function 3b |
| nurse/doctor's assistant | | from occurring. In some of these cases, home care has to be arranged to |
| dermatology/bandage master) | | apply the multilayer compression bandages the next day. |
| 4. To give information and perform | The treating physician informs the patient about the aim of the | The digital order used in the dermatology department can improve the |
| administration | compression therapy. The treating physician (internist/dermatologist) | speed of the process and decreases time variability in patients collecting |
| (internist/dermatologist) | then plans follow-up: | the materials for multilayer compression bandages. |
| | 1. The internist plans a follow-up appointment after 3 or 6 weeks | Additionally, the availability of the home care nurse at the ER can reduce |
| | (depending on location) in DVT patients at the department of internal | variability since the nurse is directly involved with the patient, estimates |
| | medicine. At hospital location A, the internist additionally informs the | the needs, and plans care. |
| | dermatology outpatient clinic either by telephone or by digital order to | |
| | schedule a follow-up appointment with the dermatologist. The | |
| | dermatologist plans a follow-up appointment after 6 weeks in CVI | |
| | patients. | |
| | 2. If necessary, the home care organization is contacted by phone or | |
| | digital order. Whereas the internist at the ER calls the home care nurse | |
| | who is available at the ER (24/7) to visit the patient and plan care. | |
| | | |

| | 3. Prescribing materials for multilayer compression bandages if | |
|-------------------------------------|--|--|
| | necessary. If the dermatologist prescribes multilayer compression | |
| | bandages, the prescription can be ordered digitally and is automatically | |
| | delivered at the patient's home the next day. Whereas the internist issues | |
| | a conventional prescription, and the patient collects the materials at the | |
| | pharmacy. | |
| | 4. Additionally, the internist and dermatologist write a patient letter to | |
| | inform the GP. | |
| 5. To triage and plan follow-up | The doctor's assistant triages the phone call or digital order by | Variability occurs if the doctor's assistant responsible for the triage is not |
| (doctor's assistant) | acquiring additional information either through supplementary | informed about how to determine the appropriate period to schedule the |
| | questions or accessing the radiology report. Based on this information | patient or the patient is not adhering to therapy. If the appointment is |
| | the assistant then estimates when edema is thought to have disappeared | made when the edema has not yet disappeared, the definitive ECS cannot |
| | to schedule the first follow-up appointment. | be measured (function 12), and a new appointment has to be made. |
| 6a. To apply the temporary | See function 6a FRAM model region Limburg. | See function 6a FRAM model region Limburg. |
| compression hosiery self-reliantly | | |
| (patient) | | |
| 6b. To perform intake and apply | See function 6b FRAM model region Limburg. | Variability occurs since the materials are regularly incomplete, resulting |
| the temporary compression | Additionally, the leg circumflex is measured once a week. | in a delay of the intake appointment. |
| hosiery/multilayer compression | | The output of this function is a precondition for function 12, but the two |
| bandages (home care nurse) | | functions are not coupled. The intake with the medical stocking supplier |
| | | is planned without the active input regarding the actual situation of the |
| | | edema. |
| 7. To perform intake (dermatologist | The doctor's assistant prepares the intake by retrieving information | The advised duration of therapy is subject to variation since |
| + doctor's assistant) | from the letter written in the emergency department. The assistant | dermatologists and internists are unaware of other's instructions. This |
| | completes this information by obtaining a comprehensive medical | |

Supplemental material

| | history. Thereafter, the assistant determines whether the edema has | could result in patients receiving different advice regarding the duration |
|------------------------------------|--|---|
| | disappeared, and calls the dermatologist who co-assesses the patient. If | of ECS therapy (function 15c). |
| | the dermatologist agrees that the ECS can be fitted, the dermatologist | |
| | issues a referral for definitive ECS. Subsequently, the patient visits the | |
| | medical stocking supplier (at the same location). The patient is | |
| | generally advised to wear ECS for six months to two years. | |
| 8. To give information, perform | If the GP diagnoses CVI, the GP calls the home care organization to | Variation occurs since some GPs are unaware that a referral is necessary |
| administration, and plan care (GP) | schedule care to apply the adjustable compression devices and makes a | for the medical stocking supplier to start function 12. |
| | referral for definitive ECS. Some GPs schedule a follow-up | |
| | appointment. | |
| 9. To perform intake and arrange | When the GP contacts the home care organization regarding CVI, a | Variation is not mentioned, mostly because of the use of clear protocols, |
| the adjustable compression devices | nurse contacts the patient and arranges an intake appointment for that | the pre-signed application form, and the support by the nurse specialized |
| (home care nurse) | day or the day after. The nurse then measures the leg and determines the | in wound care if necessary. |
| | size of the adjustable compression devices. All nurses followed an | |
| | online course to learn how to determine the size of the device and how | |
| | to apply them. Afterward, the device is ordered by completing a pre- | |
| | signed application form. This form is then sent to the medical stocking | |
| | supplier and delivered within 24-48 hours. If in exceptional cases | |
| | difficulties occur in measuring the leg to determine the size of the | |
| | adjustable compression device, a nurse specialized in wound care is | |
| | contacted to support this. | |
| 10. To apply the adjustable | After the adjustable compression devices have been delivered, the home | If in exceptional cases the adjustable compression device is ordered at the |
| compression devices (home care | care nurse visits the patient again to demonstrate how they can be | weekend it will be delivered the next working day, resulting in a delay of |
| nurse) | applied, and how an enclosed measuring tape can be used to apply them | first compression. |
| | with the right pressure. With the patient now able to apply the | |
| | adjustable compression devices self-reliantly, the home care nurse visits | |
| • | | |

| | once per week to measure leg circumference. If the patient is unable to | |
|--------------------------------------|--|--|
| | apply the devices, the home care nurse visits two to four times a week | |
| | to apply them. | |
| | | |
| 11. To contact the medical stocking | If the leg circumference is stable at two consecutive measuring | Variation in instructions to contact the medical stocking supplier is not |
| supplier (patient) | moments, the home care nurse instructs the patient to contact the | mentioned, mainly since clear agreements have been made and captured |
| | medical stocking supplier to plan an intake. Except for DVT patients at | in the patient's care plan. |
| | hospital location A, who already received an appointment for the intake | |
| | planned at the moment of diagnosis. | |
| | | |
| 12. To perform intake (medical | See function 8 FRAM model region Limburg. | Variation occurs if the referral from the GP is imprecise or missing. This |
| stocking supplier) | Additionally, information concerning assistive devices is given. | delays the function. Further variation occurs since time constraints may |
| | | affect the extensiveness of the information provided regarding assistive |
| | | devices. This could affect function 13a-14c. |
| 13. To evaluate by email/phone | For patients referred from the hospital, the ECS is delivered after two to | Variability occurs when the patient ignores the email evaluation or did |
| (medical stocking supplier) | ten days. Three to four weeks after delivery, a telephonic or automatic | not admit problems, this results in the medical stocking supplier not |
| | email evaluation is made to check whether there are problems. If there | being completely informed about the performances of the patient. |
| | are problems, a follow-up appointment is scheduled. | |
| 14. To fit ECS and assess self- | For patients referred from the GP, a standard follow-up appointment is | See function 9 FRAM model region Limburg. |
| reliance (medical stocking supplier) | arranged to fit ECS and assess self-reliance. See function 9 FRAM | Instead of affecting function 10a and 10b in the FRAM model region |
| | model region Limburg. | Limburg, this affects function 15a and 15b. |
| 15a. To assess options for self- | See function 10a FRAM model region Limburg. In region North- | No variation is mentioned, mainly because of the clear working |
| reliance (occupational therapist) | Holland, the occupational therapist uses a designed working guideline | guidelines implemented in clinical practice. |
| | in addition to prior experience and needs and possibilities of the patient | |
| | to select an assistive device. | |
| | | |

| home care nurse re-assesses self-reliance, if the nurse estimates patient can be self-reliant with the use of assistive devices, the occupational therapist is contacted. 15c. To apply the ECS self-reliantly (patient) 16. To train the patient (home care nurse) If the occupational therapist indicates that additional practice is necessary, home care nurses train the patient twice a day on home care nurses. | |
|---|---|
| occupational therapist is contacted. 15c. To apply the ECS self-reliantly (patient) 16. To train the patient (home care If the occupational therapist indicates that additional practice is | |
| 15c. To apply the ECS self-reliantly (patient) See function 10c FRAM model region Limburg. (patient) 16. To train the patient (home care If the occupational therapist indicates that additional practice is | See function 10c FRAM model region Limburg. |
| (patient) 16. To train the patient (home care | See function 10c FRAM model region Limburg. |
| 16. To train the patient (home care | |
| | |
| nurse) necessary, home care nurses train the patient twice a day on ho | See function 11 FRAM model region Limburg. |
| 3, | ow to use |
| the assistive device self-reliantly for a pre-specified time range | e. For this Additionally, variation decreases by extending the time per consult, |
| reason, the indicated time per consult is extended. If the patien | t can use giving the nurses enough time to train the patient. |
| the assistive device self-reliantly, the occupational therapist wr | rites a |
| report and sends it to the medical stocking supplier. If the assis | stive |
| device is not successfully implemented, home care needs to co | ntinue for |
| the duration of therapy. | |
| 17. To deliver assistive devices See function 13 FRAM model region Limburg. | The duration of delivery is subject to variability since it depends on the |
| (medical stocking supplier) | medical stocking suppliers stock supply. For more advanced assistive |
| Assistive devices are usually delivered within a few days to we | devices, the delivery can take up to a few weeks. This enables the patient |
| depending on the selected type and stock supply. | to be self-reliant directly and extends the duration of home care. |
| | Time variation is reduced since GPs and dermatologists already ask to |
| | implement assistive devices on their referral for the definitive ECS, |
| | making another referral for assistive devices unnecessary. |
| 18a. To perform follow-up The internist performs a follow-up appointment between three | to six The advised duration of therapy is subject to variation since internists are |
| (internist) weeks (depending on location) after diagnosis. At this appoints | ment, the unaware of each other's instructions nor of the dermatologist's. Some |
| internist checks the progress of the process and compliance to | therapy. internists omit to advise on the duration of therapy since they suppose |
| Furthermore, some internists advise the patient to stop ECS the | erapy this is the responsibility of the dermatologist. Others adjust their advice |

| | after six months (if the patient has no leg complaints), whereas others | to their most recent knowledge of literature instead of following the |
|---|--|---|
| | advise a treatment duration of two years. The duration of follow-up | protocol. This could result in the patient getting different advice and |
| | differed too; some internists perform only one follow-up visit while | subsequently could affect the duration of function 15c. |
| | others plan a consecutive visit after three months. At the last follow-up | |
| | visit, the internist writes a patient letter to inform the GP. This patient | |
| | letter generally does not contain the advice of any consecutive follow- | |
| | up appointments with the GP or advice regarding the duration of ECS | |
| | therapy. | |
| 18b. To perform follow-up | In CVI patients, the dermatologist standardized a follow-up | See function 14c FRAM model region Limburg. |
| (dermatologist/GP) | appointment after six weeks. In patients at risk for complications, a | |
| | consecutive follow-up appointment is planned after six months. When | |
| | the dermatologist does not expect problems, a letter is sent to the GP | |
| | and the referral is completed. | |
| | Some GPs standardize the follow-up visit for CVI patients whereas | |
| | others rely on the patient's responsibility to alert them if problems exist. | |
| * The numbers of the functions refer to f | Both the dermatologist and GP advise the patient to wear ECS for life. | |

^{*} The numbers of the functions refer to figure 3.

Abbreviations: DVT = deep venous thrombosis, CVI = chronic venous insufficiency, GP = general practitioner, ER = emergency room, FRAM = functional resonance analysis method, ECS = elastic compression stocking