

Title

Effect of a coordinated primary-care-based MDT-model on the treatment of hard-to-heal ulcers; a randomized clinically controlled trial

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Abbreviations

DK	– Denmark
MDT	– Multidisciplinary team
RCT	– Randomized controlled trial
QoL	– Quality of life
RE-AIM	– Reach, effectiveness, adoption, implementation, and maintenance
GCP	– Good clinical practice

Definitions

Hard-to-heal ulcer

- Diabetic foot ulcers
 - Defined as ulcers below ankle of an individual with diabetes
- Ulcers not healed three months after occurrence with one or more of the following etiologies
 - Venous insufficiency
 - Edema related
 - Arterial insufficiency
 - Immunological etiology (also termed atypical wounds)
 - Medically induced ulcers
 - Podagra induced ulcers
 - Complications following surgery that falls within the orthopedic field

Healed ulcer – Complete epithelization of the ulcer

Recurrence of ulcer – Recurrence of a previously healed ulcer in same anatomical location

Infection of ulcer – Clinical signs of infection of ulcer in need of treatment, as deemed by attending clinician

Sub-acute – Within seven days

1. STUDY RATIONAL

There is, to our knowledge, no studies on the prevalence of chronic ulcers in Denmark (DK), but it has been estimated that approximately 50.000 individuals live with a chronic or hard-to-heal ulcer in DK. This figure is bound to increase over the coming years as the elderly Danish population increases along with the incidence of diabetes, atherosclerosis, and venous insufficiency. A scoping review from 2009 estimated the prevalence of chronic ulcers in England, Sweden and Portugal was between 2.4 and 3.7 per 1000 citizens, based on three studies¹. Most if not all individuals with hard-to-heal ulcers are treated in the primary sector by nurses and/or social- and healthcare assistants. Usually, in the standard care format in DK, the individual is seen by a general practitioner, who may treat the individual on their own, refer to a hospital based wound clinic, refer to a wound care nurse in the primary sector, refer to a plethora of other different medical and surgical specialists or a combination of these options. The treatment often spans extended periods of time and often lead to non-healing ulcers. As an example, 30-40% of diabetic foot ulcers heal after 12 weeks but 42% recur within a year². At the same time, it is estimated that up to 75% of all diabetic foot ulcers can be prevented or treated successful with the right approach³, which is likely the case for hard-to-heal ulcers with other etiologies as well. Part of the challenge is the multidisciplinary requirements that individuals with hard-to-heal ulcers present^{4,5}. Hard-to-heal ulcers are often the result of other chronic diseases such as diabetes, venous insufficiency or arteriosclerosis, and the individual is often treated in multiple different settings across several medical specialties and sectors where there may not have been established clear connections between the various treatments. In the majority of cases, most bandage changes are performed in the primary sector, but decisions about ulcer treatment and related chronic diseases is handled by hospital specialists, whereas general practitioners are often left to assemble the inputs, without being the expert in all involved specialties. In that light, it may not be that surprising that connected multidisciplinary teams (MDT) are among the most successful approaches to hard-to-heal and diabetic foot ulcers^{6,7}.

In 2025, we completed an exploratory prospective cohort study of the effects of implementing a coordinated MDT approach for the treatment of individuals with hard-to-heal ulcers (here defined as diabetic foot ulcers and any ulcer not healed within three months) seen in the primary sector rather than the hospital outpatient setting. The approach consisted of wound care nurses and orthopedic surgeons from the hospital setting and wound care nurses from the primary sector. The results have not been published yet, but 68% of included individuals achieved healing of their hard-to-heal ulcers. We propose that a randomized controlled trial (RCT) of the intervention is the natural next step to evaluate the effects of implementing the proposed MDT-format in the treatment of individuals with hard-to-heal ulcers in the primary sector setting.

2. WHAT DOES THIS TRIAL ADD TO CURRENT KNOWLEDGE?

This is to our knowledge the first RCT assessing the effect of implementing this format of a coordinated MDT across primary and secondary sectors in the Danish health care system. If the intervention is shown to be favorable in comparison to the current approach to treatment of individuals with hard-to-heal ulcers, the proposed MDT structure could be implemented across the

Danish health care system with both clinical benefits for individuals with hard-to-heal ulcers and with cost-effectiveness benefits for society at large.

3. HYPOTHESIS

We hypothesize that shifting the treatment of individuals with hard-to-heal ulcers to a coordinated primary-care-based model—delivered by an MDT including an orthopedic surgeon and a hospital wound-care nurse together with a primary-care wound-care nurse—will improve healing rates compared with standard care.

4. AIM

The aim of this RCT is to evaluate the effect of shifting the treatment of individuals with hard-to-heal ulcers to the proposed MDT approach and thus away from standard care.

5. DESIGN

The study is designed as a prospective RCT comparing treatment in the proposed MDT compared to standard care.

5.1 Outcomes

Outcomes	Clinical	Economical	Patient related	Implementation
Ulcers healing rate	X			
Time to healing	X			
Ulcer recurrence rate	X			
Incidence of infections	X			
Treated with oral antibiotics				
Treated with IV antibiotics/surgery				
Incidence of amputations	X			
Below ankle				
Above ankle				
Number of visits in clinic	X			
Days admitted to hospital	X			
Cost effectiveness of intervention		X		
Wound-QoL			X	
Number of eligible individuals that can be reached with intervention				X
Number of clinics that have adopted the intervention				X

Proportion of eligible individuals that are offered the intervention				X
Retention of the intervention in the clinics over time				X

Table showing outcomes divided in four domains. IV-Intravenous, QoL-Quality of life.

Primary endpoint:

- Number of individuals that achieve healing of their hard-to-heal ulcers.

Secondary endpoints:

- Mean Time to healing in days of ulcers healed
- Number of individuals that incur recurrence of ulcer following healing of a hard-to-heal ulcer
- Incidence of infections in total and divided in
 - Infection treated with tablet antibiotics
 - Infection treated with intravenous antibiotics, admittance to hospital and/or surgery
- Incidence of amputations in total and divided in
 - Below ankle amputation
 - Above ankle amputations
- Visits in clinic(s) due to hard-to-heal ulcer
- Days admitted to hospital due to hard-to-heal ulcer
- Cost effectiveness of intervention
- Patient related outcomes - Wound-QoL questionnaire in Danish (appendix A(screening visit, 3,6 and 12 months)
- Implementation outcomes measured by RE-AIM at one year, end of study and after five years
 - Reach: Number of eligible individuals with hard-to-heal ulcer(s) that can be reached with the intervention
 - Effect: Measured by the other primary and secondary endpoints
 - Adoption: Number of clinics that have adopted the intervention
 - Implementation: Proportion of eligible individuals offered the MDT-approach
 - Maintenance: Does the intervention remain implemented in the clinical practice over time.

5.2 Patients

Hard-to-heal ulcers will here be defined as

- Diabetic foot ulcers
 - Defined as ulcers below ankle of an individual with diabetes
- Ulcers not healed three months after occurrence with one or more of the following etiologies
 - Venous insufficiency
 - Edema related
 - Arterial insufficiency
 - Immunological etiology (also termed atypical wounds)
 - Medically induced ulcers
 - Podagra induced ulcers
 - Complications following surgery that falls within the orthopedic field
 - Complication to infection

5.3 Inclusion and exclusion

Inclusion criteria

- Patients aged 18 years or above
- Hard-to-heal ulcer(s)
- Able to understand written and oral information
- Ability to follow planned visits and treatment
- Able to provide informed consent in Danish and/or English

Exclusion criteria

- Revascularization procedure in the affected limb planned, or undertaken within the 4 weeks prior to screening
- Toe blood pressure < 35mmHg
- Infections of the ulcer needing acute or sub-acute (defined as within seven days) surgical treatment
- Prior major amputations on affected or contralateral leg

- Current treatment with cytotoxic drugs or with systemically administered glucocorticoids
- Likely inability to comply with the need for planned visits because of planned activities
- Participation in another interventional ulcer-healing trial within the 4 weeks prior to screening
- Prior enrolment in this trial
- Judgement by the investigator that the patient does not have the capacity to understand the study procedures or provide written informed consent

5.4 Time period

The project is planned to start inclusion the 1st of August 2026 with the closeout of last participants on the 31st of April 2027.

Data handling and interpretation including article writing and submission is planned from the 1st of May 2027 to the 31st of October 2028.

5.5 Screening

Potential participants referred to the outpatient clinic are screened by nurse from the primary sector, for eligibility in accordance with § 46, stk. 1 of the Danish health care legislation. Potential participants are informed briefly about the study at first visit in the outpatient clinic, if interested their electronic records will be accessed for information on blood samples, prior and current ailments, prior surgery, medicine currently used, and information from distal blood pressure measurements and radiological examinations. If deemed as potential participant by the screening nurse gathered information including, contact information will be transferred to primary investigator for confirmation. Following this potential participants will be contacted by telephone and offered an information visit in the clinic.

5.6 Inclusion

Potential participants who following screening, described in section 5.5, are offered a visit in the outpatient clinic where research staff will provide oral and written information about the study, including information on procedures, visits, goal of the study, and their rights as participants. A local delegation agreement will be issued to the study site allowing research staff from the primary sector to inform potential participants instead of primary investigator.

Participants will be required to fill out written consent form, after they have received oral and written information and having been allowed up to 24 hours consideration and the possibility of bringing a personal assessor to participate at a second information visit. If the participants need additional time to consider, a follow-up meeting will be arranged minimum 24 hours after the first

visit. Participants are informed that they can always withdraw their commitment to participate in the study, without consequences for their further treatment. No study related procedures are performed until informed consent is signed by the participants.

After written consent is given by participant, this will grant the educated research staff access to participants' health information, including information in electronic records. This access will be used solely to evaluate patient health related data relevant to the research project including information on blood samples, prior and current ailments, prior surgery, medicine currently used, and information from distal blood pressure measurements and radiological examinations.

All information visits are held in a quiet and private setting to allow optimal surroundings for the potential participant to receive, evaluate and decide regarding inclusion in the project.

5.7 Intervention

The proposed intervention consists of an MDT with an orthopedic surgeon (*Jonas Askø Andersen*) and a wound care nurse from the wound clinical at North Zealand Hospital as well as a wound care nurse from the primary sector. Participants who are randomized to intervention is offered treatment in the team as deemed appropriate by the MDT. The participant will be seen in the clinic (in the primary sector) for planned study visits at.

1. Week 1
2. Week 4
3. 3 months
4. 6 months
5. 12 months
6. Extra study visits can be planned as deemed necessary for the individual participant between the above outlined visits

Weekly visits in the clinic for bandage changes and standard wound care is planned as deemed relevant by the MDT team for the individual participant. The visits are performed by wound care nurses in the primary sector. If any outcomes relevant for the study occurs outside of the planned study visits i.e., ulcer healing, infections or recurrence following healing, the participant is planned for an extra visit as soon as possible and date of event is noted.

5.8 Control

Participants randomized to control are not invited to be seen by the MDT team but are attended by the wound care nurse from the primary sector as part of the standard treatment offered to individuals with ulcers in the municipality. Apart from planned visits at 3, 6 and 12 months, the

frequency and number of visits in the study period is performed as deemed appropriate by the wound care nurses from the primary sector. If any outcomes relevant for the study occurs outside of the planned study visits i.e., ulcer healing, infections or recurrence following healing date of event is noted.

5.9 Randomization

Randomization will be performed using a randomization module from an open-source data capturing system (REDCap TM Vanderbilt University, Nashville, Tennessee USA). A researcher statistician from North Zealand Hospital, not connected to the study, will generate an allocation table for the randomization.

5.10 Blinding

All study personnel are blinded to the allocation table generated for the randomization of participants. To limit possible bias in handling of the control group, scientific staff from North Zealand Hospital will thus not know the allocation, names and other personal identifiers for participants randomized to the control group even if they should be referred to the wound care team at North Zealand Hospital as part of their standard care.

5.11 Power calculation

Sample-size is calculated in regard to the primary endpoint (healing of hard to heal ulcer) based on the results from the pilot study

The calculation is based on a Type 1 error rate (α) of 5%, and a power ($1-\beta$) of 80%. The primary endpoint is healing of hard-to-heal ulcers. In our pilot study we found healing rates of 68% of patients treated with hard-to-heal ulcers in the MDT and as described in the introduction studies have shown that 30-40% of ulcers are healed after 12 weeks, from which we set the control group to 35% of hard to heal ulcers healing in the control group.

The calculator used is a 2 means, 2 sample, 2-sided equality calculator.

$$nB = (1 + 1/\kappa) \left((z_{1-\alpha/2} + z_{1-\beta}) / (\mu_A - \mu_B) \right)^2$$

nB= Sample size

κ = The matching ratio

With the above-described parameters, the sample size is 70 patients, which due to an expected dropout of 10% will be extended to 80 patients.

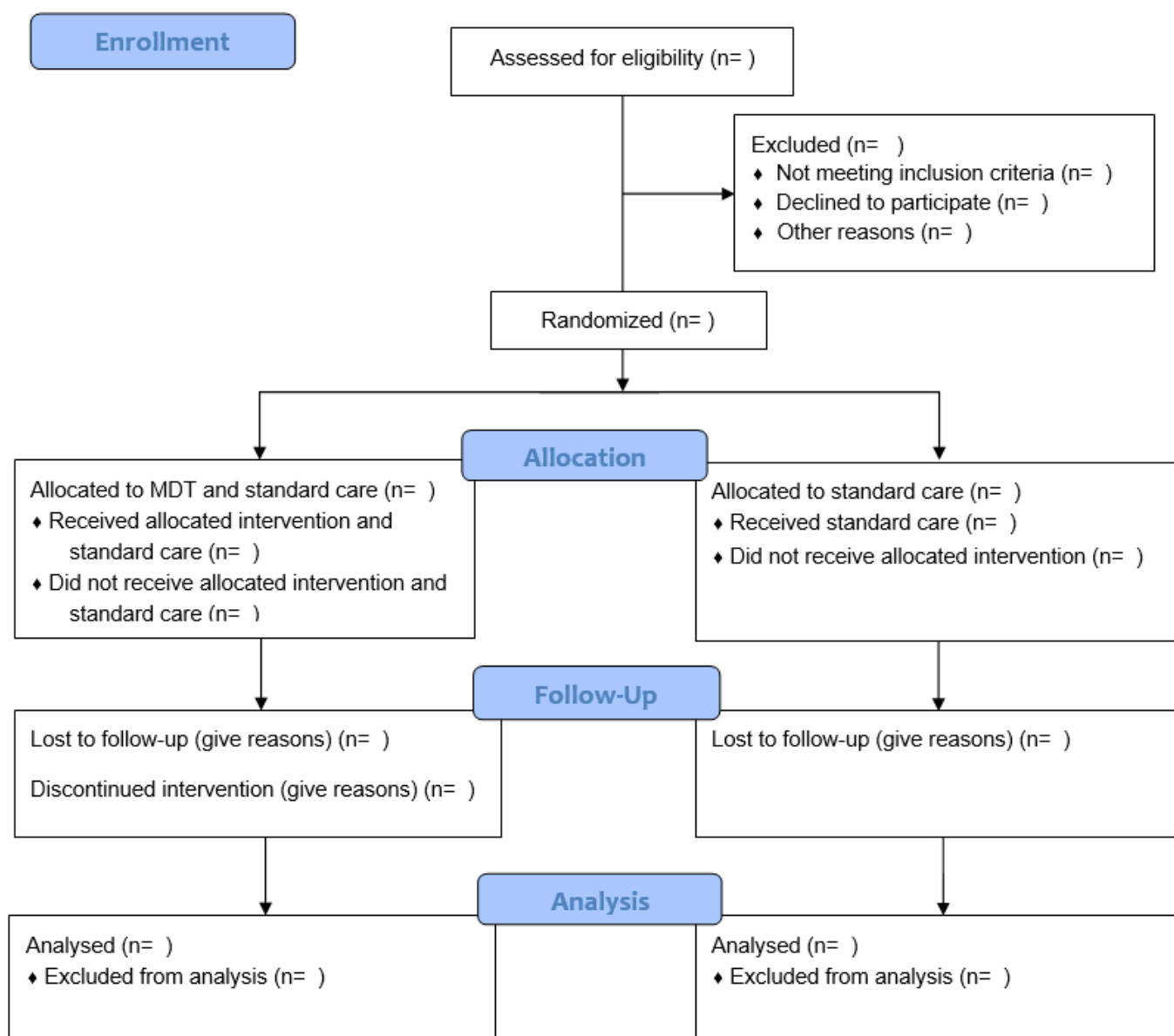
6. METHODS

Individuals that meet the inclusion and exclusion criteria will be randomized too either

A: Intervention; treatment in MDT team in a primary sector clinic, with treatments and referrals to examinations, surgery, medical treatment, and other specialists as MDT sees fit.

B: Control; standard treatment i.e., the individual is treated by a nurse in primary sector and by their general practitioner and referred to specialists, treatments, and examinations as they see fit

For both groups there is no limits to what treatments or examinations are “allowed” and they are performed/ordinated by the attending medical professionals. If standard treatment includes examinations and/or treatments by/at the Orthopedic Department at North Zealand Hospital, they will receive the same standard of care as usual.



Consort Diagram showing proposed flow in the study. MDT - multi disciplinary team,

6.1 Discontinuation of patients

- Patient discontinues assigned treatment for any reason, while not fulfilling one of the studies accepted endpoints
- Investigator decides to discontinue patient due to health or compliance reasons
- Patient misses three consecutive visits
- Patient misses five or more visits during the full treatment period

Participants who discontinue the study early will be invited to have a clinical visit before being discontinued.

Participants that are discontinued will revert to their normal treatment plan and continue in their respective clinics.

6.2 Visit description

Screening visit

The following procedures will be performed that are not part of routine clinical practice in the treatment of patients with hard-to-heal ulcers:

- In/exclusion criteria
- Randomization

Randomization performed in REDCap

The following procedures will be performed and is part of routine clinical practice in the treatment of patients with hard-to-heal ulcers:

- Baseline blood samples including:
 - Hemoglobin A₁C (if participant has a diabetes diagnosis)
 - Creatinine
 - Estimated glomerular filtration rate
 - Hemoglobin
 - Albumin
 - International normalized ratio
 - Low-density lipoproteins
 - Leucocytes
 - C-reactive protein
 - *All blood samples are analyzed immediately, and nothing is preserved in biobank. The total amount of blood is evaluated to be less than 50ml pr. patient.*
- Baseline physical examination including measurements of:
 - Blood pressure
 - Heart rate

- Oxygen Saturation
- Height – patient reported
- Weight – patient reported
- Patient history including general information on:
 - Gender
 - male or female
 - Ethnicity
 - Relationship status
 - Married yes/no and/or living with partner yes/no
 - Diabetes type (if participant has a diabetes diagnosis)
 - 1 or 2
 - Duration of diabetes (if participant has a diabetes diagnosis)
 - measured in years with no decimal
 - Duration of hard to heal ulcer
 - measured in days
 - Competing diseases/comorbidity
 - By diagnosis and year of debut
 - Current medicine
 - quantity and type
 - Smoking
 - quantity and nature, present or past (defined as at least 3 months with no use)
 - Alcohol intake
 - quantity
 - Prior surgery relevant to the hard to heal ulcer
 - Type and year
 - History of prior hard to heal ulcer
 - History of prior amputations
 - Location, type, and year
- Palpable pulses in extremity with hard to heal ulcer
- Ulcer Photo
 - Photos of index ulcer(s) are taken from two angles and uploaded to healthcare IT system used at the participating institutes (Sundhedsplatformen)

- TSBP and ABPI
 - TSBP and ABPI are performed by educated staff and results evaluated
 - Patients with TSB under 30 mmHg are referred to department of vascular surgery were deemed necessary
- Ulcer evaluation
 - Assessment of ulcer surroundings
 - Assessment of infection
 - Assessment of healing
 - Measurement of longest length, width, and depth in mm
 - Measurement of area in mm^3 (length*width*depth)
 - Categorizing by Sinbad Grading System (if participant has a diabetes diagnosis)

All other visits in intervention group

The following procedures which are part of routine clinical practice in the treatment of patients with hard-to-heal ulcers, will be performed

- Standard treatment and ordination of examinations and referrals as deemed necessary by MDT are undertaken and documented
- Ulcer Photo
 - Photos of index ulcer(s) is taken from two angles and uploaded to healthcare IT system used at the participating institutes (Sundhedsplatformen)
- Ulcer evaluation
 - Assessment of ulcer surroundings
 - Assessment of infection
 - Assessment of healing
- Measurement of longest length, width, and depth in mm
- Measurement of area in mm^3 (length*width*depth)
 - Assessment of incision site (where applicable)
 - Measurement of length, width, and depth of ulcer(s) after debridement
- Categorizing by Sindbad Grading System (if participant has a diabetes diagnosis)
- Collection of data relevant to outcomes outlined in the study
 - Antibiotic treatment
 - Surgery

- Admittance to hospital
- Healing of hard to heal ulcer
- Recurrence of previously healed hard-to-heal ulcer
- Changes in medicine/new ailments
 - Changes to the patient's medicine, and/or new diagnosis are registered

All other visits in control group

The following procedures which are **not** part of routine clinical practice in the treatment of patients with hard-to-heal ulcers, will be performed

Ulcer Photo

- Photos of index ulcer(s) is taken from two angles and uploaded to healthcare IT system used at the participating institutes (Sundhedsplatformen)

Categorizing by Sindbad Grading System (if participant has a diabetes diagnosis)

The following procedures which are part of routine clinical practice in the treatment of patients with hard-to-heal ulcers, will be performed

- Ulcer evaluation
 - Assessment of ulcer surroundings
 - Assessment of infection
 - Assessment of healing
- Measurement of longest length, width, and depth in mm
- Measurement of area in mm^3 (length*width*depth)
 - Assessment of incision site (where applicable)
 - Measurement of length, width, and depth of ulcer(s) after debridement
- Collection of data relevant to outcomes outlined in the study
 - Antibiotic treatment
 - Surgery
 - Admittance to hospital
 - Healing of hard to heal ulcer
 - Recurrence of previously healed hard to heal ulcer
- Changes in medicine/new ailments
 - Changes to the patient's medicine, and/or new diagnosis are registered

Patient related Outcome measures

Wound QOL questionnaire, which is not part of routine clinical practice in the treatment of patients with hard-to-heal ulcers, is filled out at

- Screening Visit
- 3-month visit
- 6-month visit
- 12-month visit

6.3 Statistics

All statistical analysis will be performed using the version of SAS currently used at our institute. All data will be analyzed on the intention to treat basis. All baseline data will be presented using appropriate summarizing statistics. Appropriate comparable statistical analysis will be applied to

- Number of individuals that achieve healing of their hard-to-heal ulcer(s) – compared between groups using Chi-Squared test
- Mean time (in days) to healing of healed hard-to-heal ulcer(s) in days - compared between groups using non paired *t*-test
- Incidence of recurrence of ulcer following healing of hard-to-heal ulcer(s) - compared between groups using Chi-Squared test
- Incidence of infections divided in
 - Infection treated with tablet antibiotic
 - Infection treated with intravenous antibiotics, admittance to hospital and/or surgery

Compared between groups using Chi-Squared test

- Incidence and amputations in total and divided in
 - Below ankle amputation
 - Above ankle amputations

Compared between groups using Chi-Squared test

- Number of visits to clinics due to hard-to-heal ulcer(s) - compared between groups using non paired *t*-test
- Days admitted to hospital due to hard-to-heal ulcer(s) - compared between groups using non paired *t*-test
- Patient related outcomes (Wound-QoL) – compared using paired *t*-test divided in

- Global subscale
- Body subscale
- Psyche subscale
- Everyday life subscale
- Cost effectiveness of intervention will be assessed by comparing expenditures between intervention and control group at four levels;
 - 1) Hospital based care: Calculated using yearly Diagnosis Related Group (DRG) rates determined by the Danish Health Data Authority, obtained from the Danish National Patient Register
 - 2) Primary care: Calculated using fees paid to healthcare providers by the health management regions, including general practitioners, podiatrists, and other specialists in primary care.
 - 3) Prescribed medication: Calculated as the total cost of medication, including any out-of-pocket expenses, obtained from the Danish National Prescription Registry
 - 4) Municipal home care: Calculated based on the average number of minutes of home care provided weekly, summed to total monthly hours. These hours are multiplied by the average hourly cost found in the national database of municipal services

Were cost are not directly discernable from the above mentioned data sources estimates of cost will be made based on best available data and knowledge.

- RE-AIM outcomes will be applied to assess implementation outcomes
 - Reach will be assessed using data available from Frederikssund Kommune on number of individuals with hard-to-heal ulcer(s) treated that can be reached with the cross-sectional MDT intervention in the municipality.
 - Effect will be assessed by the clinical outcomes described above i.e., ulcer healing, infection etc.
 - Adoption will be assessed on a local (NOHs catchment area), regional (the Capital Region of Denmark) and on a Danish level, by the number of clinics that have adopted the cross-sectional MDT model.
 - Implementation will be assessed by the proportion of eligible individuals with hard-to-heal-ulcers offered the MDT-approach in Frederikssund Kommune.
 - Maintenance will be assessed by how many of the clinics that have adopted the intervention actually maintain the intervention over time.

7. PERSPECTIVE

The results of this study will allow us to evaluate if there is a clinical advantage to treating individuals with hard-to-heal ulcers in an MDT in the primary sector, which we believe will ensure a greater continuity in the treatment, shorten unnecessary delays in referrals between different specialists and teams and ensure earlier specialized treatment and examination. In addition, we believe that treatment closer to the patient's home will ensure a higher adherence to the suggested treatments and compliance to attending agreed upon visits and interventions. Finally, we believe that the intervention will allow for reduced costs of treatment by reducing time to healing, unnecessarily repeated treatment and examinations and the need for lengthy transports between clinics. If the anticipated gains are met in the project, we believe that the format of the proposed MDT might be advantageous to roll out in every municipality in Denmark, provided necessary investment in number of clinical personnel and competences are secured.

8. QUALITY CONTROL AND MONITORING

The study will be performed in accordance with the Helsinki Declaration, International Council for Harmonization of technical requirements for pharmaceuticals for human use Guidelines for good Clinical Practice (GCP)¹ and after approval by The National Committee on Health Research Ethics and the Legal Department responsible for data handling in the Capital Region, which has already been attained (p-2026-21162). The study will be registered on <http://www.clinicaltrials.gov/>.

9. ETHICAL CONSIDERATIONS AND DATA SAFETY

The study will be conducted in accordance with the ethical principles that have their origin in the Declaration of Helsinki 1996 and the principles of GCP⁸

9.1 Ethical committee approval

The appropriate approval from a local Danish ethical committee will be obtained before start of trial, and their guidelines will be followed throughout the process. Patients will receive oral and written information on the study, before being required to sign an informed consent paper.

9.2 Personal data usage and protection

The appropriate approval from the Legal Department responsible for data handling in the Capital Region has been attained (p-2026-21162), and their guidelines will be followed throughout the process. All patient data will be stored and treated in accordance with regulation 2016/679 from the European parliament on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, dated 27 April 2016, and the Danish amendment to regulation 2016/679.

Collected data will be entered in pseudonymized form in Research Electronic Data Capture – REDCap (Vanderbilt University, USA) a secure, web-based platform.

Pseudonymized data will be transferred to SAS online client in The Capital Region of Denmark for statistical analysis

Collected data will be stored in secure logged drives in pseudoanonymized form, with relevant identification list in separate secure logged drive.

9.3 Patient Perspective and Conclusion

Participants enrolled in this study will receive a treatment that is already implemented in our and several other clinics, and the unpublished data from our prospective study points towards a possible advantage in treatment of individuals with hard to heal ulcers in an MDT team setting. The enrolled participants who do not receive intervention in the form of treatment in the MDT, will receive standard treatment and examination. It is the believe of the group behind the project that there are no additional risks associated with the procedure and treatments performed in the study, compared to common clinical practice in the treatment of individuals with hard-to-heal ulcers. In conclusion, the enrolled participants in the study will receive a treatment with potential benefits for them, with no evident increased risk of complications, thus making the study ethically sound.

10. RECRUITMENT

Participants will be screened and included as described in section 5.5 and 5.6.

Potential participants will be recruited from the patients attending the “Sygeplejeklinik Øst”, Frederikssund Hospital, Frederikssundsvej 30, 3600 Frederikssund, Denmark. In addition, primary investigator will screen patients attending the wound care clinic at North Zealand hospital for potential participants to ensure sufficient participants in the project. In the accordance with his role as a clinician with daily function in both “Sygeplejeklinik Øst” and the wound care clinic at North Zealand Hospital, the primary investigator will transfer data to himself, needed to ensure that potential participants fulfill inclusion and exclusion criteria (see section 5.3) which includes information on

blood samples, prior and current ailments, prior surgery, medicine currently used, and information from distal blood pressure measurements and radiological examinations. Following this potential participants will be contacted by letter and offered an information visit in the clinic.

If the above outlined methods does not ensure the inclusion of the 80 participants that are planned for inclusion, general practitioners and licensed podiatrists in the region will be contacted by letter and asked to refer likely candidates as part of the screening process, and data relevant to in- and exclusion criteria. The letter will be a standard text (appendix 1).

To ensure inclusion of the planned 80 participants it is estimated that data from patient electronic record of between 100 and 150 individuals will be accessed in the screening process. The data accessed in the screening process pertains to a time period set to 1st of January 2016 to date of data transfer to ensure satisfactory completeness of the data to ensure that stated goals are met.

11. DISSEMINATION OF RESULTS

The study is initiated by Jonas Askø Andersen. Data is owned by the investigators. Positive, inconclusive as well as negative study results will be published in both national and international oral and written presentations as well as peer-reviewed international scientific journals. Regardless of the obtained data shows positive, inconclusive as or negative results it will be published. If data against expectations are not published in international journals it will be published on a public website, for example www.clinicaltrials.gov.

12. PATIENT INFORMATION

12.1 Written Information

All patients will receive information detailing the project, written information on their rights as Participants in research projects from the Danish ethics committee, and written information on the procedure, potential unintended side effects, and what to expect after the operation. The information will be given by educated research staff in quiet and undisturbed environment.

12.2 Verbal Information

All patients will be informed in layman's terms on the details of the planned intervention.

13. FUNDING

The projects funding is guaranteed by the participating centers, and a specific funding application plan has been developed and implemented. The group has already obtained 600.000 DKK for the study from "Region Hs Forskningsfond", which partially covers wages for the scientific staff and cost associated with obtaining, analyzing, and publishing data from the study.

There are no economic incentives for participants or research staff involved in the study.

Participants will not receive any reimbursement from participation in the study.

14. INSURANCE

If patients should incur complications related to the study treatment they are covered under the normal frames of "Patienterstaningen".

15. REFERENCES

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