2018

Halting Progression of Stasis Dermatitis: Community Perspectives and Strategies for Prevention

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December 2017-January 2018

Battenkill Valley Health Center

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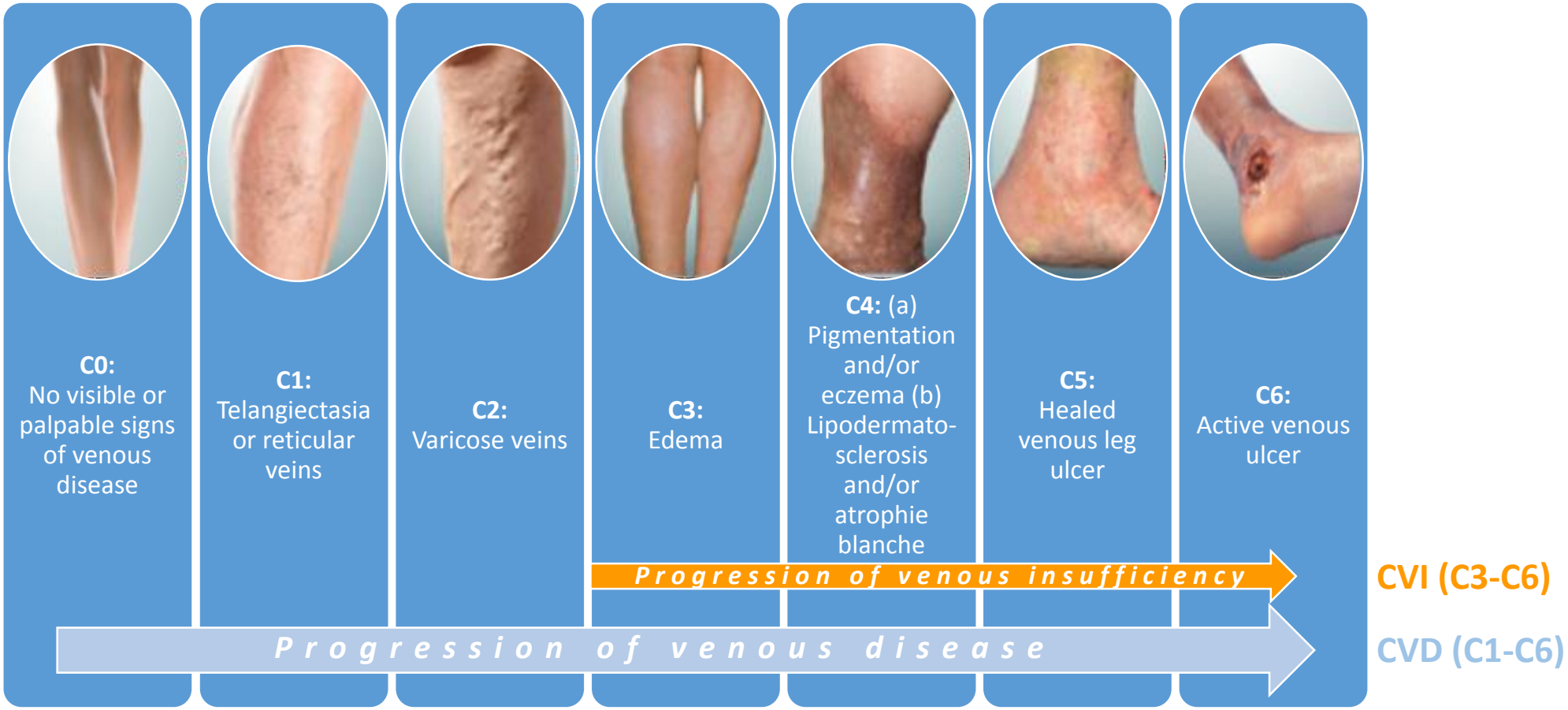
Problem Identification

- **Chronic venous disease (CVD)** is commonly assessed using the Clinical-Etiology-Anatomy-Pathophysiology (CEAP) classification
- **Chronic Venous Insufficiency (CVI)** is characterized as patients with more advanced clinical signs of CVD (C3-C6)

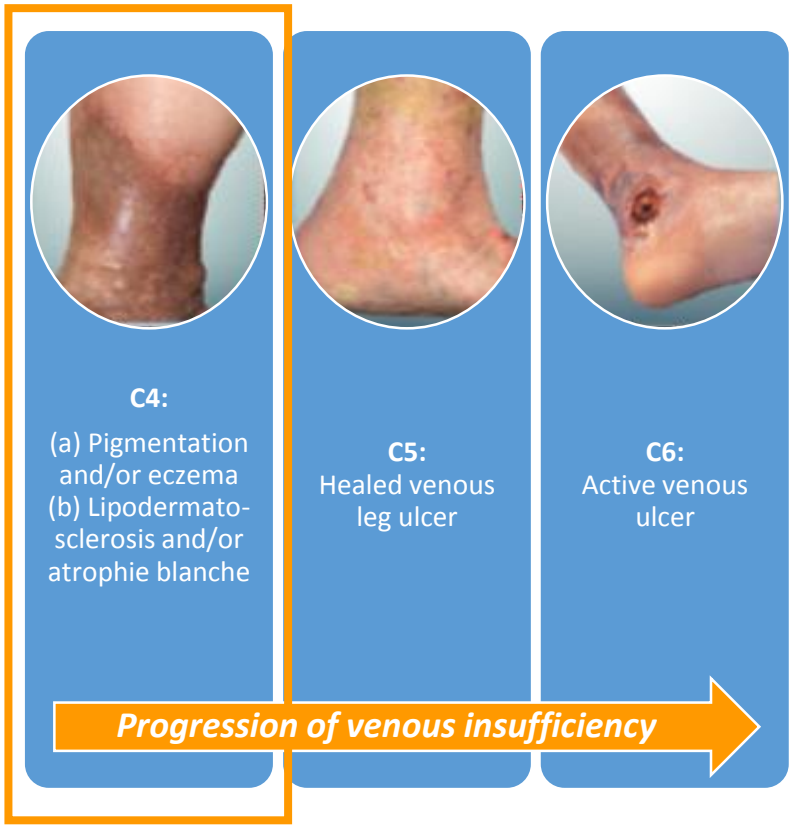


CEAP Classification[1] of Chronic Venous Disease

Clinical classification illustrated only

Problem Identification

- CVI skin changes in western countries range from **<1%-40% in women** and **<1%-17% in men**[2]
- Progression to **stasis dermatitis (C4)** is most common in **people >50 years old** in the USA with an overall disease **prevalence of 6-7%**[3] in patients >50 years old
- **In Vermont, 18.1%** of people are >65 years old and specifically in **Bennington County 22.1%** of people are >65 years, demonstrating **a large population at risk of developing or actively managing stasis dermatitis** without taking into account people ages 50-65[4]
  - One study found an association between symptoms of venous insufficiency and **increased BMI** in people from **Burlington, Vermont** and Leiden, Netherlands[5]
  - In Vermont, **56%** of the population **>45 years old are considered obese**[6] and in **Bennington County 24.1%**[7] of the total population are considered obese, **thus further increasing the risk of these populations developing or managing stasis dermatitis**
- According to the AAFP[8], the prevalence of **venous stasis ulcers (C5-C6)** is **1%** in the USA, and of people in the USA affected by venous stasis ulcers, the **recurrence rate is 72%** [9]
- Complications of venous ulcers include osteomyelitis, cellulitis and malignant changes, thus developing venous stasis ulcers **significantly increases a patient's mortality rate**[10,11]
- **Key Problem:**
  - The complications of stasis dermatitis including venous ulcers, osteomyelitis, and cellulitis all significantly increase morbidity and mortality of disease
  - Progression beyond stasis dermatitis and avoidance of the aforementioned complications are preventable with patient education and adherence to basic therapies including compression stockings and lifestyle modification



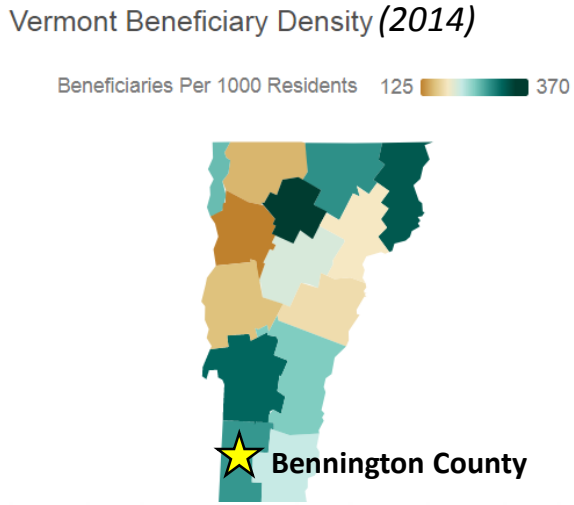
C4 = Stasis Dermatitis

- **Therefore, the questions needing to be addressed are: (1)** *What is our patients' understanding of stasis dermatitis?* ***(2)*** *Are they aware of the complications associated with disease progression?* ***(3)*** *Do they know when to come see a provider for worsening symptoms of venous insufficiency beyond stasis dermatitis?* ***(4)*** *What are the barriers to treating stasis dermatitis and preventing disease progression?*

Public Health Cost

- Estimated financial burden of **$1.9-2.5 billion dollars per year** in the USA for **venous stasis ulcers**[9,12]
  - Average total medical cost of **$9685 per patient** for 3 months of venous stasis ulcer treatment[9]
- In 2016, **Vermont had 135,668 total Medicare beneficiaries** (22% of total VT population)[13]
  - This is higher than the national average (18%) of Medicare beneficiaries as a percent of the total population
- The financial burden of progression of CVI beyond stasis dermatitis is an **enormous Medicare expense** since people >50 years old are predominantly affected
- In 2016, there were **9,116 Bennington County beneficiaries of Medicare**[13] which was **25%** of the Bennington County population
  - This has increased from 8,591 Bennington County beneficiaries of Medicare in 2014,[14] which was **24%** of the Bennington County population
- As of 2014, in Bennington County the **standardized risk-adjusted per capita Medicare cost was $8,473.15**[14] which is higher than the majority of counties in Vermont
- **Medicare does not cover compression stockings/garments** in their insurance plan, limiting access to an affordable preventative therapy

Thus, there is a large proportion of Medicare dollars being spent on CVI beyond stasis dermatitis which could be saved with relatively inexpensive interventions including compression stockings, exercise, and weight loss. Through preventative measures, expanded insurance coverage, and appropriate management of stasis dermatitis prior to venous ulcer formation we can decrease the burden of cost in Bennington County, Vermont, and nationwide.



Bennington County contains a total of **8,591** Medicare beneficiaries with Part A and Part B coverage, including both those enrolled with fee-for-service plans (**7,866**) and Medicare Advantage plans (**725**). With a total population of 36,589 residents, this corresponds to a beneficiary density of **234 beneficiaries per 1000 residents**.

Community Perspectives

Maggie Dusha, ANP FNP ***Battenkill Valley Health Center Provider***	**Dr. Marisa Friscia, MD** ***Battenkill Valley Health Center Provider***	**Kate Lawrence, MSN BSN RN** ***Director of Home Care, VNA & Hospice of Southwest Region of Vermont***	**Margaret Heale, WOCN** ***Heale Wound Care WTA program course: Private WOC Consulting***
Do your patients understand the potential consequences of stasis dermatitis?			
"I don't [think so] because patients who have had this for a long time look at this [stasis dermatitis] as their norm."	"I try to explain it to them but the truth is, is that most patients don't understand it."	"For the most part the patients are unaware across the board unless they have had nursing interventions before."	"No I don't think they do generally speaking. People don't seem to appreciate that covering up a problem, such as with trousers, doesn't get rid of that problem."
Do you think your patients understand when to come see their provider for worsening symptoms of venous insufficiency beyond stasis dermatitis?			
"Not always, they don't realize the severity and complications that can occur. They say 'it will heal on its own' if they have a venous ulcer developing. They typically initially try to manage the symptoms themselves, but they will come in with increased drainage, pain, and redness around the lesion."	"If they have had it for a while with recurrent symptoms then yes they do, but not initially. If they have had multiple episodes of treatment with improvement, then they will return with worsening symptoms."	"No, overall patients have no clue. They know their legs get big and their shoes don't fit but they won't start going to see a provider unless it is painful, they have an ulcer, or a provider picks it up in the office."	"Most people don't see discoloration or itching as something that will take them to the doctor's office. Also, many people don't have a primary care provider at all because they either want to avoid the doctor's office or can't afford to go to a doctor's office."

Community Perspectives continued

Maggie Dusha, ANP FNP	Dr. Marisa Friscia, MD	Kate Lawrence, MSN BSN RN	Margaret Heale, WOCN
What are some of the barriers your patients face in treating stasis dermatitis?			
"The frequency of needing to be seen by a provider or resistance to letting someone into their home such as a visiting nurse; the cost of treatment can be very expensive; and it is hard for patients in this age group to get compression stockings on. The zipper compression stockings are expensive and insurance won't give it to them at first."	"Being proactive, exercising, eating the right food, low salt [diet], losing weight, and using compression socks." "Following through on their part; moisturizing and not scratching."	"[Barriers are] based on cost, access, and self-management ability." "Access to compression stockings and the secondary problem is being able to put them on. This is very problematic for morbidly obese and elderly patients."	"The biggest barrier is compression stockings, they are really difficult for patients to manage." "There are many creams and moisturizers out there and people try all of that stuff. They are told they need to moisturize their legs, but the content of the moisturizers can be very allergenic so finding products that people are not sensitive to is a huge problem."
What are the barriers you as a provider face in counseling/managing these patients/their stasis dermatitis?			
"Compliance, time (office visit length), supplies to treat in the office. Education-wise, there isn't much material that is written on this that I can give to patients since I want to make sure it is in language they can understand."	"Getting the patient back into the office multiple times to reinforce the importance of treatment. Follow up is much more important than the primary visit."	"Access to [insurance] coverage for garments/stockings for long term management and patient buy in, which takes more than a 5-10 minute office session."	"Trying to convince people that they need to change their lifestyle and they need to be part of the solution to the problem that they have. We are all individuals and all have habits that we grow into."

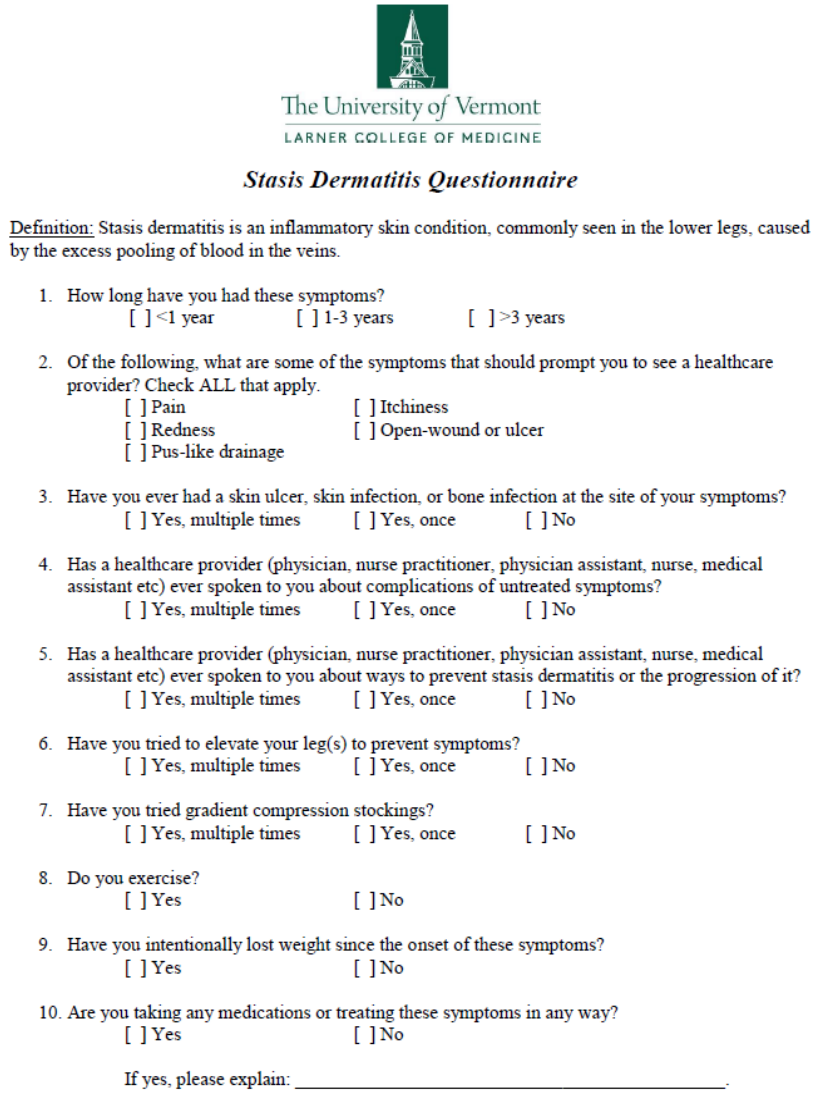
Methodology

Goals of the Project

- Assess the community's understanding of stasis dermatitis and their awareness of its complications
- Use this information to help healthcare providers tailor their preventative health counseling accordingly
- Provide education for patients on stasis dermatitis, its complications, and therapies/behavioral changes to prevent disease progression

Methodology

- 13 patients at Battenkill Valley Health Center between 1/1/2017-12/13/2017 were identified by the electronic health records as having a diagnosis of stasis dermatitis or chronic venous insufficiency
- *Stasis Dermatitis Questionnaire* administered to a total of 7 of the selected patients; 6 via telephone and 1 in person
- 1 patient chose to abstain from the questionnaire
- 5 patients were unable to be reached
- No identifying information was collected



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Stasis Dermatitis Questionnaire

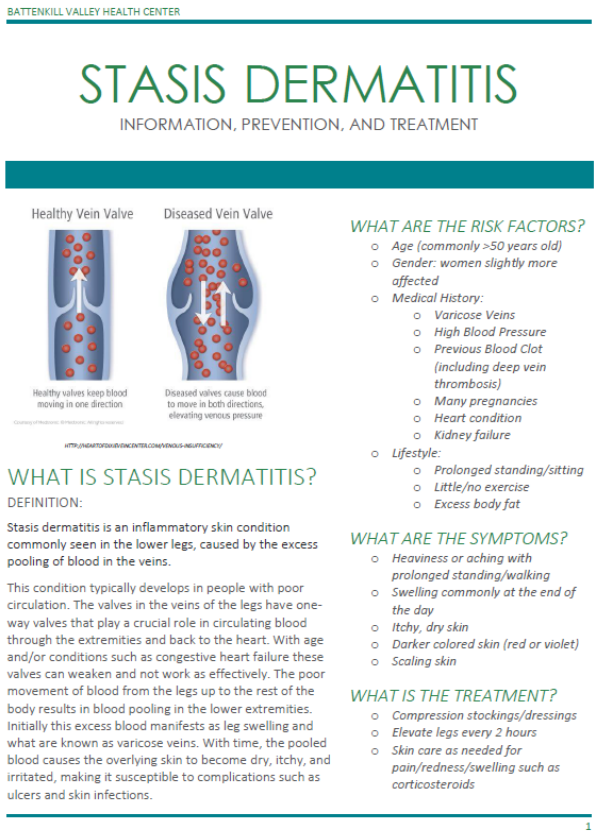
Definition: Stasis dermatitis is an inflammatory skin condition, commonly seen in the lower legs, caused by the excess pooling of blood in the veins.

1. How long have you had these symptoms?
   [ ] <1 year [ ] 1-3 years [ ] >3 years
2. Of the following, what are some of the symptoms that should prompt you to see a healthcare provider? Check ALL that apply.
   [ ] Pain [ ] Itchiness
   [ ] Redness [ ] Open-wound or ulcer
   [ ] Pus-like drainage
3. Have you ever had a skin ulcer, skin infection, or bone infection at the site of your symptoms?
   [ ] Yes, multiple times [ ] Yes, once [ ] No
4. Has a healthcare provider (physician, nurse practitioner, physician assistant, nurse, medical assistant etc) ever spoken to you about complications of untreated symptoms?
   [ ] Yes, multiple times [ ] Yes, once [ ] No
5. Has a healthcare provider (physician, nurse practitioner, physician assistant, nurse, medical assistant etc) ever spoken to you about ways to prevent stasis dermatitis or the progression of it?
   [ ] Yes, multiple times [ ] Yes, once [ ] No
6. Have you tried to elevate your leg(s) to prevent symptoms?
   [ ] Yes, multiple times [ ] Yes, once [ ] No
7. Have you tried gradient compression stockings?
   [ ] Yes, multiple times [ ] Yes, once [ ] No
8. Do you exercise?
   [ ] Yes [ ] No
9. Have you intentionally lost weight since the onset of these symptoms?
   [ ] Yes [ ] No
10. Are you taking any medications or treating these symptoms in any way?
    [ ] Yes [ ] No

    If yes, please explain: _____.

Intervention

- Developed an educational handout on stasis dermatitis for healthcare providers to distribute to qualified patients
- Devise recommendations for future preventative counseling based on analysis of survey data



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STASIS DERMATITIS

INFORMATION, PREVENTION, AND TREATMENT

Healthy Vein Valve

Diseased Vein Valve

Healthy valves keep blood moving in one direction

Diseased valves cause blood to move in both directions, elevating venous pressure

WHAT IS STASIS DERMATITIS?

DEFINITION:

Stasis dermatitis is an inflammatory skin condition commonly seen in the lower legs, caused by the excess pooling of blood in the veins.

This condition typically develops in people with poor circulation. The valves in the veins of the legs have one-way valves that play a crucial role in circulating blood through the extremities and back to the heart. With age and/or conditions such as congestive heart failure these valves can weaken and not work as effectively. The poor movement of blood from the legs up to the rest of the body results in blood pooling in the lower extremities. Initially this excess blood manifests as leg swelling and what are known as varicose veins. With time, the pooled blood causes the overlying skin to become dry, itchy, and irritated, making it susceptible to complications such as ulcers and skin infections.

WHAT ARE THE RISK FACTORS?

- *Age (commonly >50 years old)*
- *Gender: women slightly more affected*
- *Medical History:*
  - *Varicose Veins*
  - *High Blood Pressure*
  - *Previous Blood Clot (including deep vein thrombosis)*
  - *Many pregnancies*
  - *Heart condition*
  - *Kidney failure*
- *Lifestyle:*
  - *Prolonged standing/sitting*
  - *Little/no exercise*
  - *Excess body fat*

WHAT ARE THE SYMPTOMS?

- *Heaviness or aching with prolonged standing/walking*
- *Swelling commonly at the end of the day*
- *Itchy, dry skin*
- *Darker colored skin (red or violet)*
- *Scaling skin*

WHAT IS THE TREATMENT?

- *Compression stockings/dressings*
- *Elevate legs every 2 hours*
- *Skin care as needed for pain/redness/swelling such as corticosteroids*

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WHEN SHOULD I CONTACT MY HEALTHCARE PROVIDER?

Contact you provider if you notice **any of the** following:

- Increased pain
- Increased redness
- Any drainage
- Open-wound or ulcer

TIPS TO MANAGE YOUR STASIS DERMATITIS

- Exercise!
- Elevate your legs every 2 hours for 15 minutes
- Take breaks while walking/standing for prolonged time periods
- Wear loose-fitting cotton clothing
- Wear compression socks/dressings to improve circulation to your legs
- Moisturize if your skin feels dry

REFERENCES

- *The American Academy of Family Physicians:* http://www.aafp.org/afp/2010/0415/p989.html
- *The American Academy of Dermatology:* https://www.aad.org/public/diseases/eczema/stasis-dermatitis

Contact us with any questions or concerns!

Battenkill Valley Health Center

Phone: (802) 375-6566

Website/Patient Portal
https://www.battenkillvalleyhealthcenter.org/

Address: 9 Church Street, Arlington, VT, 05250

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Results & Responses

Stasis Dermatitis Questionnaire Results

- *Our patient's understanding of stasis dermatitis and its complications*
  - **Relatively poor**
  - **71%** of patients surveyed have had symptoms of stasis dermatitis for **more than 3 years**, yet **only 43% of patients correctly identified** all of the symptoms that would warrant a visit to a healthcare provider (pain, redness, pus-like drainage, or open-wound/ulcer).
- *Patients with history of complications from CVI*
  - **57%** of patients **experienced at least one complication** as a result of their CVI including a skin infection, skin ulcer, or bone infection **indicating poorly controlled disease** within this sample population
- *Patients who had been spoken to about stasis dermatitis by a healthcare provider*
  - **86%** of patients stated that they **had *not* been counseled** on the complications of untreated symptoms of stasis dermatitis and **57%** of patients stated they **had *not* been counseled** on ways to prevent stasis dermatitis and its progression by a healthcare provider demonstrating **an opportunity for education**
- *Patients who have attempted to manage their stasis dermatitis with leg elevation and/or gradient compression stockings*
  - **86%** of patients have tried to **elevate their legs** for symptom relief and **71%** of patients have tried **gradient compression stockings** at least once to prevent symptoms
- *Patients who have attempted to manage their stasis dermatitis with exercise, weight loss and/or medication*
  - **57%** of patients **exercise**, **29% intentionally lost weight** since the onset of their symptoms, and **29%** of patients are taking **medications/treating their symptoms** in some alternative way

Results & Responses continued

Community Perspective Responses

- Unanimously providers interviewed agree that the majority of patients do not understand the potential consequences of stasis dermatitis
- Providers generally agree that patients are initially hesitant to see a provider for worsening symptoms of venous insufficiency and commonly only present after severe pain and ulceration has developed
- Treatment barriers for patients according to providers include: access to therapies, cost of therapies, and self-motivation for adherence to therapies
- Treatment barriers for providers treating these patients include: patient compliance, patient follow-up, lack of appropriate educational material, and access to insurance coverage for preventative treatment modalities

Overall Conclusions Drawn from Results

- Providers' perception of their patients' understanding of stasis dermatitis and its complications corresponds with surveyed patients' comprehension.
- Despite most patients attempting preventative therapies, 50% had developed complications from CVI. This was consistent with provider reflections of delayed patient presentations until severe disease had developed. This demonstrates poorly controlled disease and room for implementing more aggressive preventative strategies and therapies.
- The discrepancy in the patient-reported lack of provider counseling on stasis dermatitis complications and prevention and provider-reported lack of patient compliance and follow-up suggests an opportunity to investigate how to better educate patients in the context of an office visit with a goal of adherence.

Evaluation of Effectiveness & Limitations

Evaluation of Effectiveness

- This study served as a cursory glance at patient awareness of stasis dermatitis to assist providers with preventative counseling while also developing a handout to supplement this discussion.
- This study was effective in the sense of beginning the conversation surrounding this disease, yet in order to evaluate the true effectiveness of this study a secondary study would need to be performed on a larger cohort of patients over a longer duration. The results of these two studies could be compared to determine if the there is a similar trend in outcomes.

Limitations

- The size of the cohort sampled was limited to 7 participants which restricts our ability to draw significant conclusions and generalize our findings to the population
- The patients surveyed were based on a medical record diagnoses of stasis dermatitis or CVI, which relies on provider documentation and this is not always up to date
- Patients from only one primary care office were surveyed, introducing selection bias into our results
- Most patients were administered the *Stasis Dermatitis Questionnaire* over the telephone, thus preventing clinical confirmation of stasis dermatitis/CVI prior to questionnaire completion

Recommendation for Future Projects/Interventions

- Distribute Stasis Dermatitis handout to patients with venous insufficiency or at risk of developing it due to comorbid conditions
  - Evaluate patients' management of venous insufficiency over time after being provided with this material
- Train medical assistants and nurses to assess all patients for chronic venous disease on initial office visit intake
- Encourage providers to incorporate a lower extremity examine into their repertoire of preventative screening exams to assess for stasis dermatitis
  - Document any signs of venous insufficiency with images in chart for chronic evaluation
- Encourage providers to use the Venous Clinical Severity Score (VCSS)[15,16] when evaluating all patients
  - Document this value in the medical records for an objective evaluation of their chronic venous disease

Attribute	Absent = 0	Mild = 1	Moderate = 2	Severe = 3
Pain	None	Occasional, not restricting activity *or* requiring analgesics	Daily, moderate activity limitation, occasional analgesics	Daily, severe limiting activities *or* requiring regular use of analgesics
Varicose veins*	None	Few, scattered: branch VV's	Multiple: GS varicose veins confined to calf *or* thigh	Extensive: thigh *and* calf *or* GS *and* SS distribution
Venous edema†	None	Evening ankle edema only	Afternoon edema, above ankle	Morning edema above ankle *and* requiring activity change, elevation
Skin pigmentation‡	None *or* focal, low intensity (tan)	Diffuse, *but* limited in area, *and* old (brown)	Diffuse over most of gaiter distribution (lower 1/3) *or* recent pigmentation (purple)	Wider distribution (above lower 1/3) *and* recent pigmentation
Inflammation	None	Mild cellulitis, limited to marginal area around ulcer	Moderate cellulitis, involves most of gaiter area (lower 1/3)	Severe cellulitis (lower 1/3 and above) *or* significant venous eczema
Induration	None	Focal, circummalleolar (< 5 cm)	Medial *or* lateral, less than lower third of leg	Entire lower third of leg *or* more
No. of active ulcers	0	1	2	> 2
Active ulceration, duration	None	< 3 mo	> 3 mo < 1 y	Not healed > 1 y
Active ulcer, size§	None	< 2-cm diameter	2- to 6-cm diameter	> 6-cm diameter
Compressive therapy‖	Not used *or* not compliant	Intermittent use of stockings	Wears elastic stockings most days	Full compliance: stockings + elevation

Table I. Venous clinical severity score (VCSS).

* "Varicose" veins must be > 4-mm diameter to qualify so that differentiation is ensured between C1 and C2 venous pathology.
† Presumes venous origin by characteristics (e.g., Brawny [not pitting or spongy] edema), with significant effect of standing/limb elevation and/or other clinical evidence of venous etiology (ie, varicose veins, history of DVT).
Edema must be regular finding (eg, daily occurrence).
Occasional or mild edema does not qualify.
‡ Focal pigmentation over varicose veins does not qualify.
§ Largest dimension/diameter of largest ulcer.
‖ Sliding scale to adjust for background differences in use of compressive therapy.
VV, Varicose vein; GS, Great saphenous; SS, Small saphenous.

References

1. BSN Medical. CEAP Classification & Therapy Options. Website: http://chronicvenousdisease.bsnmedical.com/purchaser/index.php#ceap. Accessed December 13, 2017.
2. Beebe-Dimmer et al. The epidemiology of chronic venous insufficiency and varicose veins. *Annals of Epidemiology.* 2005; 15(3): 175-184.
3. Yalcin et al. The prevalence of skin diseases in the elderly: analysis of 4099 geriatric patients. *The International Journal of Dermatology.* 2006; 45: 672-676.
4. The United States Census Bureau. Quick Facts Bennington County, Vermont. Website: https://www.census.gov/quickfacts/ fact/table/benningtoncountyvermont/PST045216. Accessed January 13, 2018.
5. Engbers MJ, Karasu A, Blom JW, Cushman M, Rosendaal FR, van Hylckama Vlieg. Clinical features of venous insufficiency and the risk of venous thrombosis in older peole. *British Journal of Haematology.* 2015; 171: 417-423
6. The state of Obesity. The state of obesity in Vermont. Website: https://stateofobesity.org/states/vt. Accessed January 17, 2018.
7. The Center for Disease Control. Vermont obesity prevalence data 2004-2013. Website: https://www.cdc.gov/diabetes/atlas/countydata/OBPREV/Vermont.xlsx. Accessed January 17, 2018.
8. Collins L, Seraj S. Diagnosis and treatment of venous ulcers. *American Family Physician Journal*. 2010 Apr 15; 81(8): 989-996.
9. Valencia IC, Kirsner RS, Eaglstein WH. Chronic venous insufficiency and venous leg ulceration. *Journal of American Academy of Dermatology*. 2001; 44(3): 401-421.
10. Nelzén O, Bergqvist D, Lindhagen A. Long-term prognosis for patients with chronic leg ulcers: a prospective cohort study. *European Journal of Vascular and Endovascular Surgery*. 1997; 13(5): 500-508.
11. Takahashi PY, Cha SS, Kiemele LJ. Six-month mortality risks in long term care residents with chronic ulcers. *International Wound Journal*. 2008; 5(5): 625-631. doi:10.1111/j.1742-481X.2008.00542.
12. Etufugh CN, Phillips TJ. Venous ulcers. *Clinics in Dermatology*. 2007; 25: 121-130.
13. Centers for Medicaid and Medicare Services. Medicare Enrollment Dashboard. Website: https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Dashboard/Medicare-Enrollment/Enrollment%20Dashboard.html. Accessed December 20, 2017.
14. Healthgrove by Graphiq. Bennington County Medicare Spending & Usage. Website: http://medicare-usage.healthgrove.com/l/2992/Bennington-County. Accessed December 19, 2017.
15. Vasquez MA, Rabe E, McLafferty RB, Shortell CK, Marston WA, Gillespie D et al. Revision of the venous clinical severity score: Venous outcomes consensus statement: Special communication of the American Venous Forum Ad Hoc Outcomes Working Group. *Journal of Vascular Surgery*. 2010; 52(5): 1387-1396. doi.org/10.1016/j.jvs.2010.06.161
16. Perrin M, Dedieu F, Jessent V, Blanc MP. Evaluation of the new severity scoring system in chronic venous disease of the lower limbs: an observational study conducted by French angiologists*. Phlebolymphology*. 2006; 13(1): 6-16.