Multidisciplinary Limb Salvage Program Increases Endovascular Volume while Improving Limb Salvage

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Disclosure

Speaker name: David O’Connor, MD

I have the following potential conflicts of interest to report:

☒ Consulting: CSI, Boston Scientific
☐ Employment in industry
☐ Stockholder of a healthcare company
☐ Owner of a healthcare company

Other(s):

☐ I do not have any potential conflict of interest
The Mission

MISSION ties in to mission of Hackensack Meridian Health:

“Our mission is to provide the full spectrum of life-enhancing care and services to create and sustain healthy, vibrant communities.”

Our Mission: “Saving limbs is saving life”

Older patients with PAD undergoing major LE amputation still face a slightly high mortality risk, with almost half of all patients with PAD dying within a year of major LE amputation.

# Critical Steps for Quality Improvement

| PHASE I         | Initial Assessment of Institute                                      | • Need & Resource Assessment  
|                |                                                                    | • Adaptation of clinical practice guideline  
|                |                                                                    | • Capacity building  
| PHASE II       | Creating a structure for implementation                            | • Implementation teams & Role specification  
|                |                                                                    | • Implementation Plan/timeline  
|                |                                                                    | • Foreseeing challenges  
| PHASE III      | Ongoing Structure post Implementation                               | • Trouble shooting  
|                |                                                                    | • Process evaluation  
|                |                                                                    | • Data Monitoring & sharing  
|                |                                                                    | • Feedback for Learning  
| PHASE IV       | Improving future applications                                       | • Lessons for others (what takes to develop collaborative relationships and factors affected quality implementation)  

Phase I: Need and resource assessment

NEED

Quality Improvement
Outcome driven program – in line with new CMS structure
Coordination and communication and collaboration

Problems identified:
- Fractured system/poor communication/lack of “ownership”
- CONTINUITY OF CARE is poor

Case reports-
How many cases are we missing within our system?

RESOURCE ASSESSMENT:

Identify disciplines within HUMC hospital system
Lead physician/Physician champions/Navigator
Departments
Leadership
ADAPTATION OF CLINICAL PRACTICE GUIDELINES

Review published successful outcomes of multidisciplinary amputation prevention

Create a true multidisciplinary institution-wide program

• Virtual/not under one roof
• Service line that will expand a program and benefit patient care
**Phase II: CREATING STRUCTURE FOR IMPLEMENTATION**

**IMPLEMENTATION TEAMS AND ROLE SPECIFICATION**

- Lead physician
- Physician champions: core team
- Navigator/program manager
- Outcome based algorithms – all physicians/providers to get algorithms
  - Protocols/standards and **measures** for standard of care for all providers
- Time to intervention – patients at various points of entry in the system—bring into algorithms for timely care
- Team communication
- Role Specification for all providers
- Inclusion criteria for all providers
The Nuts and Bolts

Core Provider Team
- Vascular/Endovascular
- Wound Division
- Podiatry
- Plastic surgery
- Infectious Disease
- Endocrinology

Outcome based algorithms
- ER protocol
- Inpatient protocol
- Acute outpatient protocol
- Chronic outpatient protocol
All patients with LE wound/ischemia
ABI/PVR
Hgb A1C: if >7 endo consult
X ray if on the foot
All patients
“Take the socks off”

vascular consult on all lower extremity wounds/Notify Wound
Division/Prog MGR

Vascular on call Team
• Identifies the initial
ER team huddle
• NOTIFIES PROG MGR

Initial team huddle
• Podiatrist on call for surgical debridement
• Vascular for intervention if needed
• ID on call
• Wound care: SOP
• Plastic surgery
• Immediate/Emergency amputation only if limb
or life threatening and agreed upon by
ID/Vasc

Patient admitted to Hospital
Prog Mgr to initiate HUMC Hospital
Inpatient Limb salvage algorithm

Patients to be discharged
- All patients to have a follow up in the wound
center for acute outpatient limb salvage
protocol
- ER social service/case manager to arrange
home wound care if needed/ ensure follow
up in the wound center from home or other
facility
Inpatient HUMC limb preservation protocol

Admitting physician
Orders vascular consult
Notifies ProgMgr/wound consult
(New EPIC provider wound consult)

Vascular initiates team huddle
Prog mgr follows closely/coordinates
Prog Mgr ensures/orders ABI/PVR HgB A1C
Nutrition/diabetes education/endo consult if HgB A1C >7
ORDER SETS

Program mgr works with primary attending/case manager for discharge planning and wound division follow up (DISCHARGE ORDER SET) and other follow ups as necessary
Transition to Acute outpatient limb salvage protocol
Notifies PCP if outside HUMC and not the admitting physician

Each provider/team to provide specialty specific service
Vascular for vascular procedures
ID for antibiotics
Podiatry for surgical debridement
Wound for active wound care/HBO consult/supervision of wound care (criteria for wound care provider)
Plastic surgery
coordination with podiatry for wound care
Prog mgr continues to follow
Acute Outpatient Limb Preservation Protocol

Patient referred to:
Vascular
Wound Center
ID
Endocrine
Plastic Surgery
Triaged by vasc/wound office for timely appointments
Prog Mgr will expedite referrals

Vascular Service-urgent endo intervention
Wound Center: Wound care
HBO algorithm/ protocol
ID: antibiotics as needed
Debridement: Podiatry/wound center
Team communication
Prog Mgr: patient and family education/other referrals as necessary

Wound center: Regular wound care visits and home visiting nurse ordered if needed in addition. HBO protocol initiated if needed

Vascular Follow up:
ABI/TCPO2/arterial duplex

ID follow up as needed/Podiatry follow up
Team communication
Prog mgr: Patient and family education Other referrals as necessary: endocrine, nutrition, physical therapy

If no improvement in 4 weeks
Team involved in care to communicate and reassess
Diagnostics as needed
Treatment changed per team decision
Chronic outpatient limb preservation program

Patient healed
Refer to Podiatry for chronic care/at risk care
Refer back to referring physician
Vascular: Surveillance studies

Patient follows up at 3 months with limb salvage core team
Team communication regarding progress
Prog Mgr to coordinate/ensure 3 month follow up
If new/recurring problem for wound, vascular, infection:
Bring back into acute outpatient protocol

Patient follows up at 6 months with limb salvage core team
Team communication regarding progress
Prog Mgr to coordinate/ensure 3 month follow up
If new/recurring problem for wound, vascular, infection:
Bring back into acute outpatient protocol

Patient follows up 12 months with limb salvage core team
Team communication regarding progress
Navigator to coordinate/ensure 3 month follow up
If new/recurring problem for wound vascular infection:
Bring back into acute outpatient protocol
IMPLEMENTATION PLAN

– System wide education to identify ("find") these patients to receive timely care/Implement Protocols
  • ER leadership/Dept Chairs/CEO/CMO
  • CNO/nursing leadership/Nurses/PMR leadership/Therapists
  • Case management: quarterly meetings in place
  • Hospitalists/Primary providers
  • Hospital wide "TAKE THE SOCKS OFF" initiative
– Community Wide: Marketing: Scheduled Dinner talks/community outreach (quarterly in wellness ctr)/HUMC website/brochures/media
Phase III: Ongoing Structure Post Implementation

- QUARTERLY TEAM MEETINGS FOR CORE TEAM
- Trouble shooting
  - Discuss cases: success and failure
- Process evaluation
  - Identify where there were gaps in care
- Data Monitoring & sharing
  - Data entry system/entered by program manager
- Feedback for Learning
Phase IV: Improving Future Applications: Lessons for others

- Collecting data and presenting at regional/national meetings
- Publishing data and outcomes
- Continuing to participate in Amputation Prevention Summit
- Collaborating and sharing data: system wide/network wide/Vascular Quality Initiative
- Marketing: Media/Newsletters
Results to Date

• 25% increase in PAD referrals over 1 year
• 20% increase in endovascular interventions
• 5% increase in podiatry interventions
Summary

- Multidisciplinary limb salvage improves outcomes
- Specialty “Buy-in” worth the effort
- System wide protocol avoids confusion
- Program navigator needed to organize complex care
- Helps foster collaboration with colleagues
- Always a work in progress
Thank you!
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