An Interdisciplinary Team Approach to Limb Loss Rehabilitation

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DISCLOSURE

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- **No relevant financial relationship reported**

Background:
Amputee Services at Harborview Medical Center

Population:

40% trauma/ 60% dysvascular and/or diabetic

Inpatient Services:

Limb Preservation Service

Inpatient Therapies – PT, OT, Psychology

Acute Inpatient Rehab

Amputee Support Group

Outpatient Services:

Amputee Clinic (Ortho, Rehab, P&O) – avg 120 visits/month

Vascular and High Risk Foot Clinics

CORP – PT, OT, Psychology, Vocational Rehab, TR, SW

Amputee Support Group

My perspective in a nutshell……

- ALL amputees benefit from immediate coordinated, interdisciplinary care – amputee rehab is COMPLEX!

- We underestimate the impact of amputation on function and coping– falls, pain, grief/loss, depression, isolation

- We often underestimate the functional potential of amputees.

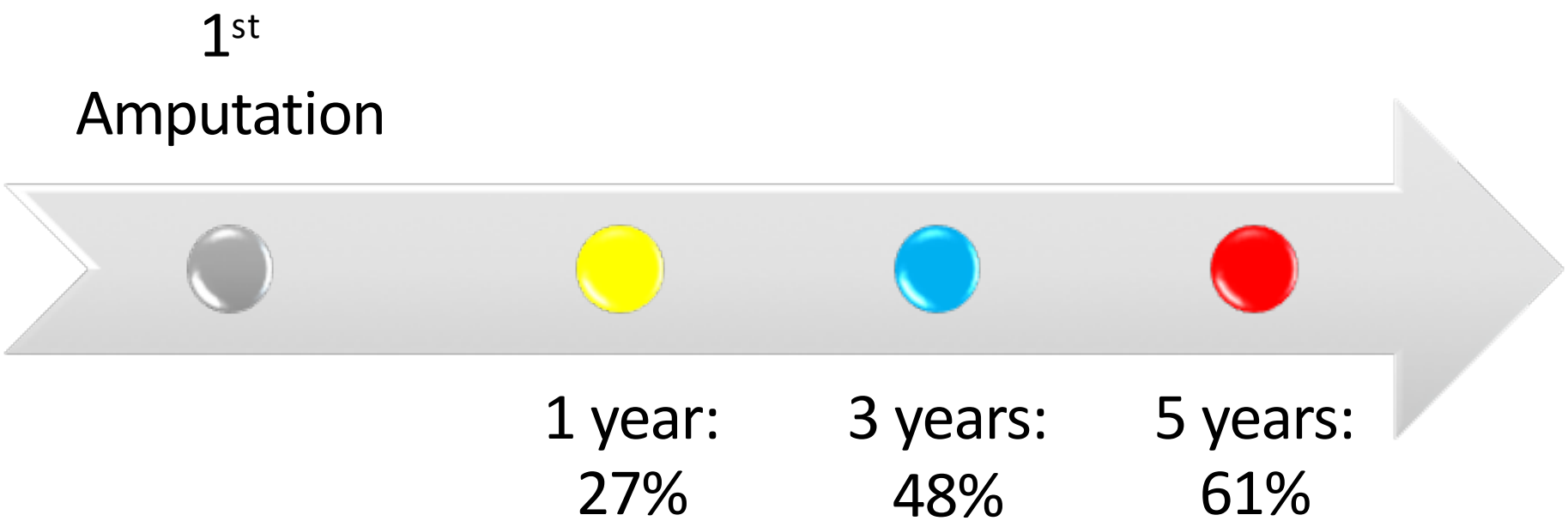
- Funding and access to rehab services is an enormous barrier for amputees – inpt rehab, outpt therapies, prosthetics – we must advocate for our patients.

Dysvascular Amputation Complications

- 1 year re-amputation rates
  - 26%
- Amputation of contralateral limb
  - 20%
- Falls
  - 16% (2.8 % with major fracture)
- Costs
  - 1996 $4.3 billion/year for acute/post-acute care for Medicare beneficiaries with amputation

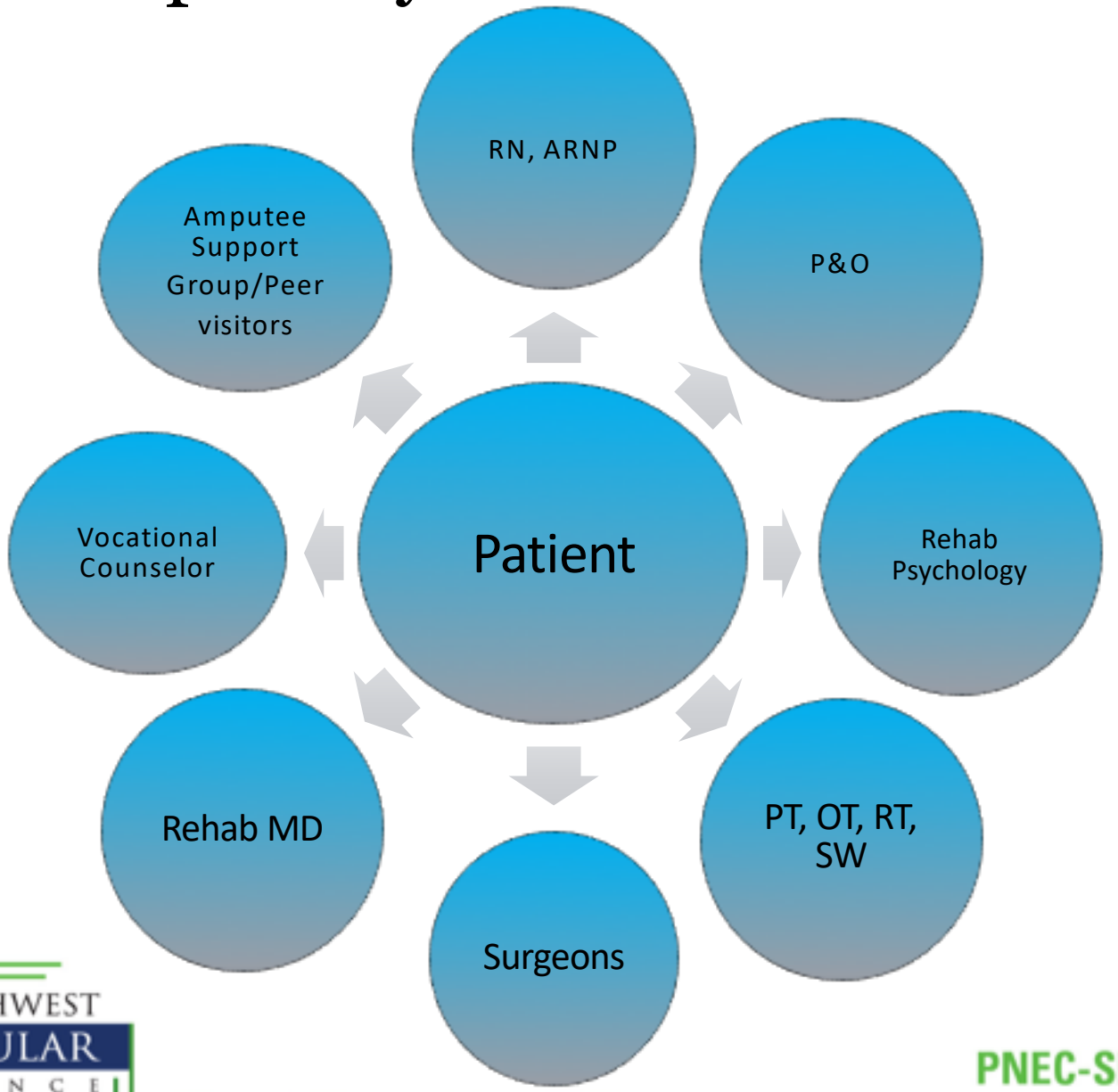
Arch Phys Med Rehabil. 2005 Mar;86(3):480-6. Reamputation, mortality, and health care costs among persons with dysvascular lower-limb amputations.
Dillingham TR[1], Pezzin LE, Shore AD.

Re-Amputation Rates in Patients with Diabetes



Izumii et al, Diabetes Care 2006;29:566-570

Amputation Specialty Team

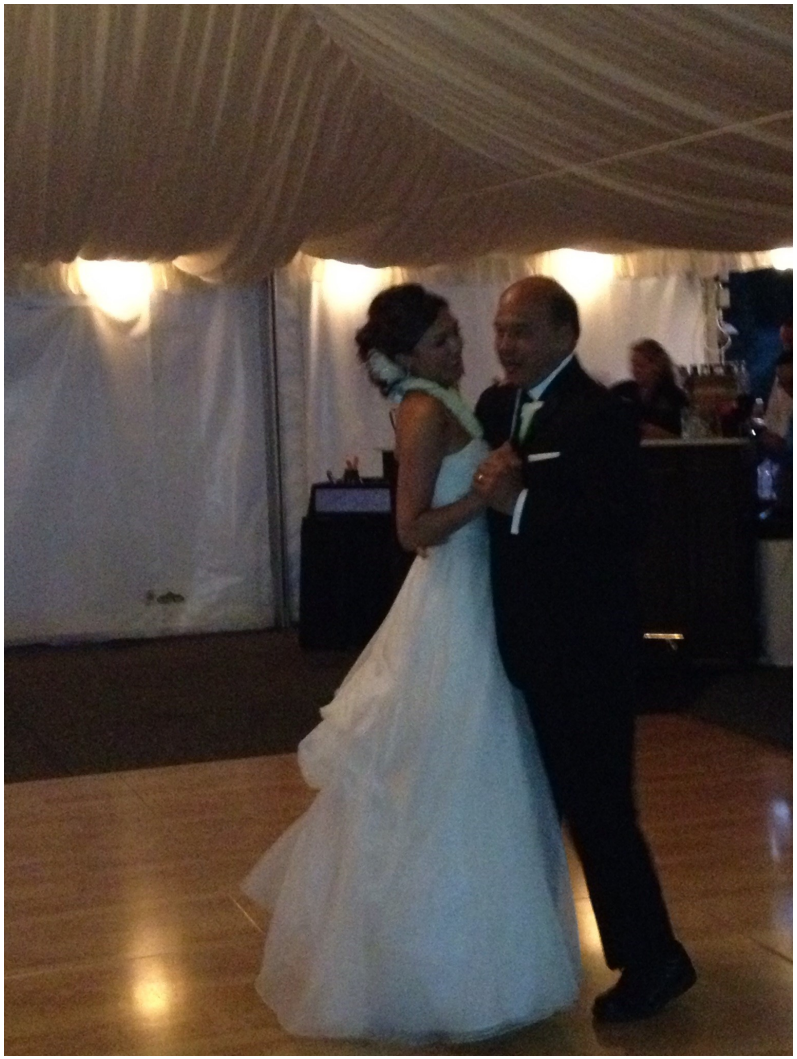


Role of the Rehab Physician

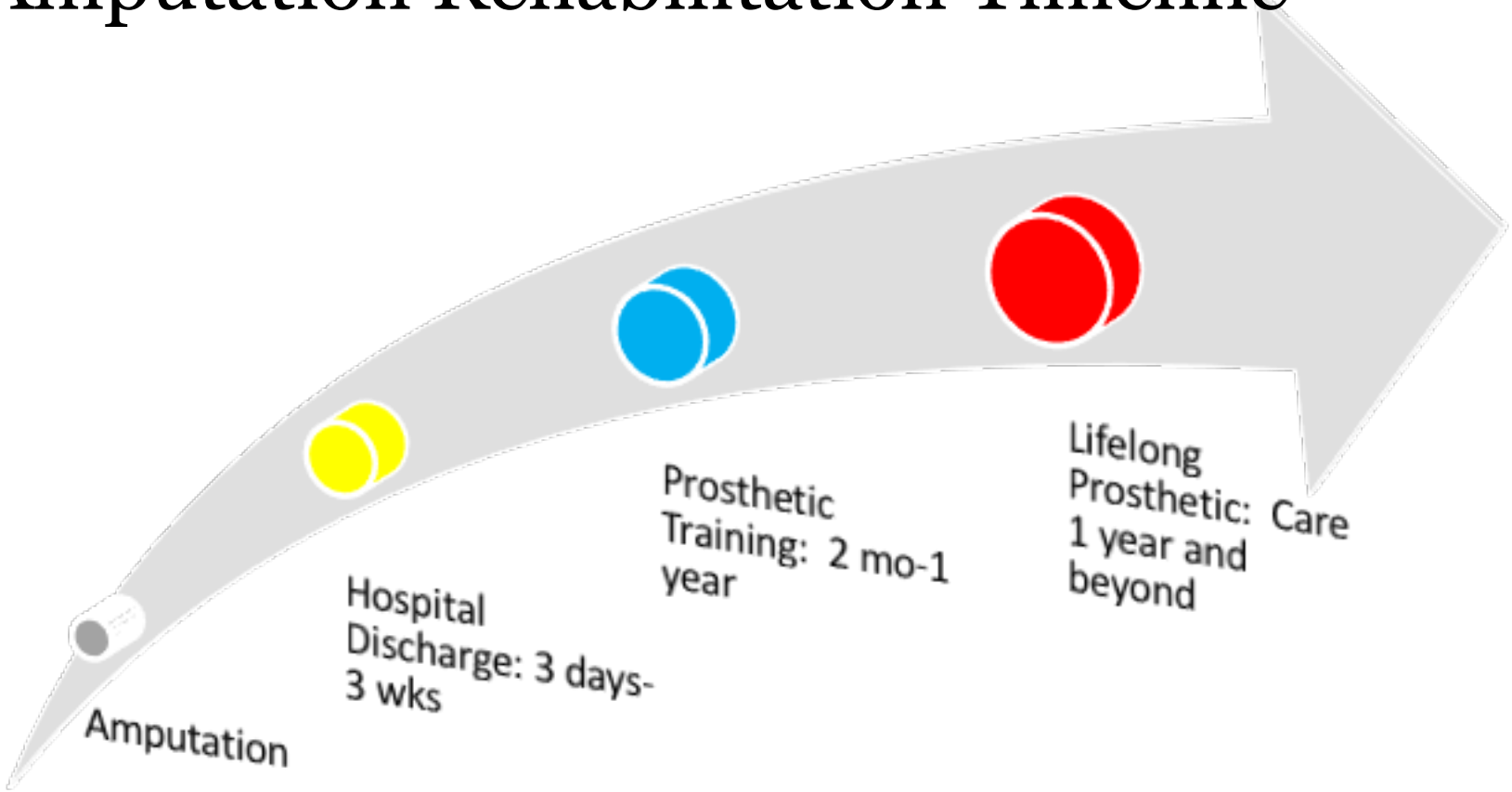
To optimize medical stability in order to:

- facilitate rehabilitation
- improve function and quality of life
- prevent secondary disability
- prevent further limb loss
- optimize use of prostheses

Helping people to find meaning and set goals



Amputation Rehabilitation Timeline



What can a Rehab MD do pre-amputation?

- Provide education and counseling about expected recovery and outcomes
- Assess mobility and equipment needs post amputation
- Help prepare patient and family for post-amputation rehab (SNF, inpatient rehab or home)
- Optimize caregiver support
- Optimize medical and mental health stability for improved outcomes
- Address pain
  - residual limb pain
  - phantom limb pain

BKA Clinical Pathway at HMC

BKA Planned → 6 months follow up

OR	Patient care map provided Pre-operative high block outside surgical field Standard long posterior flap technique Sutured closure Rigid posterior slab splinting or RRD
Acute Care	Early standardized PT/OT assessment and education Early mobilization Rehab consult Acute Pain Management consult Prosthetics and Orthotics consult BKA Education materials provided
Post-discharge care	Standard follow-up in Rehab clinic at 1-2 weeks Long-term functional outcomes measurement Prosthetics fitting Communication with primary care doctor Return to work

BKA Rigid Post-Op Dressings

- Protect wounds
  - Reduces incidence of fall-related trauma
- Prevent contractures
  - Knee flexion
- Control edema
- Shape limb
- Facilitate earlier weight-bearing

Removable Rigid Dressings for Postoperative Management of Transtibial Amputations: A Review of Published Evidence.

Reichmann, et al.

PM&R. May 2018

Pre-Prosthetic Rehabilitation Goals:

- Promote wound healing
- Prevent injury to surgical site
- Achieve sufficient mobility and ADL function to safely return home
- Prepare physically for eventual prosthetic fitting
- Address psychological adjustment
- Address pain
  - residual limb pain
  - phantom limb pain

What is the evidence for inpatient rehabilitation in dysvascular amputation?

Inpatient rehab following single limb amputation resulted in:

- Improved function
- Improved independence with ADLs
- Less depression and improved emotional function
- Improved social function

- PM R. 2013 Jul;5(7):583-90. **Effect of postacute rehabilitation setting on mental and emotional health among persons with dysvascular amputations.** Pezzin, L et al.

What is the evidence for outpatient rehabilitation in dysvascular amputation

Outpatient rehab resulted in:

- Improved transfers and mobility
- Improved independence with ADLs
- Reduced falls

- Int J Orthop Trauma Nurs. 2018 Feb;28:22-29. **prospective study of short-term functional outcome after dysvascular major lower limb amputation. Madsen, UR, et al.**

Functional outcomes: dysvascular amputation

- Unsuccessful prosthesis fitting associated with:
  - Depression
  - Pain
  - Diabetes
  - Prior arterial reconstruction
- At 1 year, 92% were fit with prosthesis and using to some extent.

- J Rehabil Res Dev. 2012;49(10):1493-504. **Prosthetic fitting, use, and satisfaction following lower-limb amputation: a prospective study.** Webster JB[1], Hakimi KN, Williams RM, Turner AP, Norvell DC, Czerniecki JM.

My perspective in a nutshell……

- ALL amputees benefit from EARLY rehabilitation care
- We underestimate the impact of amputation on function and coping– falls, pain, grief/loss, depression, isolation
- We often underestimate the functional potential of amputees – we CAN improve outcomes with rehab
- Funding and access to rehab services is an enormous barrier for amputees – inpt rehab, outpt therapies, prosthetics – we must advocate for our patients

Thank You!

Questions?