

An Approach to Treating Diabetic Foot Ulcers

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Statement of the Problem

- The most common causal pathways leading to leg amputation include a foot ulcer
- One in six people with diabetes will have a foot ulcer during their lifetime
- 82,000 US lower limb amputations occurred in people with diabetes
- ***A majority of amputations could be avoided if the events leading to the foot ulcer could be ameliorated or if the foot ulcer was treated promptly and aggressively with “good wound care”***

The VA Situation

- 5,000,000+ patients in the VA system
- 1,000,000+ have diabetes
- 150,000+ will develop a foot ulcer some time during their lives

Unique VA Diabetic Foot Ulcer and Amputation Patients by Setting

FY 2003-2004

	Tertiary Care Centers (66)	Primary and Secondary Care Centers (91)	Community-Based Outreach Clinics (862)
Total number of unique ulcer patients	21,817	15,826	7,787
Amputations	3,426	1,612	

VA Foot Ulcer Care

- VA ulcer care providers have different backgrounds
 - Use a vast spectrum of therapies, some in place of repetitive, painstaking, routine “good wound care”
 - Busy providers must balance competing demands of acutely ill patients *vs.* medically and socially complex, time-consuming, foot ulcer patients



Research on VA Foot Care Shows

There are “Opportunities” for...

- Enhanced provider communication and coordination
- Resolution of structural issues: system organization including clinics and personnel; transportation
- Electronic documentation (care for foot ulcers is under-coded and under-rewarded)

What Do the High-Risk Veterans From 8 VA's Tell Us?

- Many can't see or feel their feet
- They have not been given enough education on foot care
- They don't know whom to call / when to call



- They have un-met foot care needs
- They are not adequately involved in their care

Approach to Solving the Problem

Single interventions targeting a modifiable risk factor ???

No single magic bullet is sufficiently robust to achieve long-term prevention in all patients in all health care settings

- This is a complex systemic problem requiring a complex set of interventions

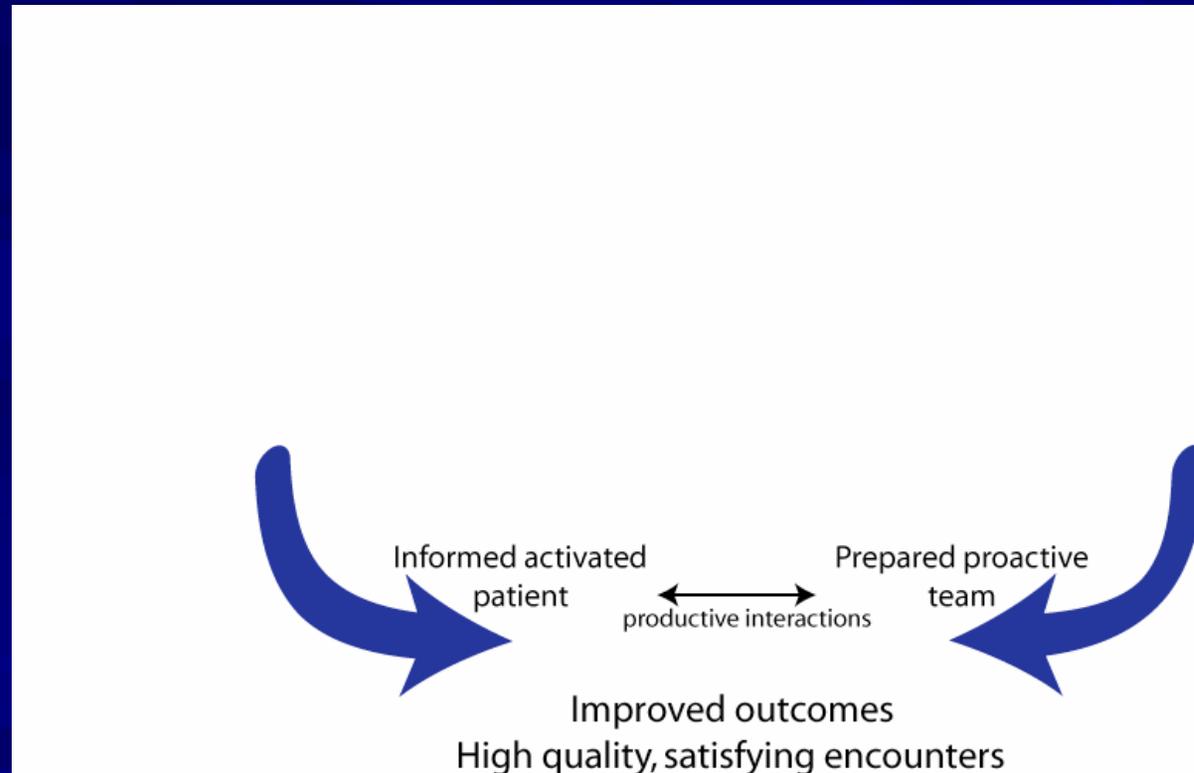
The Chronic Care Model



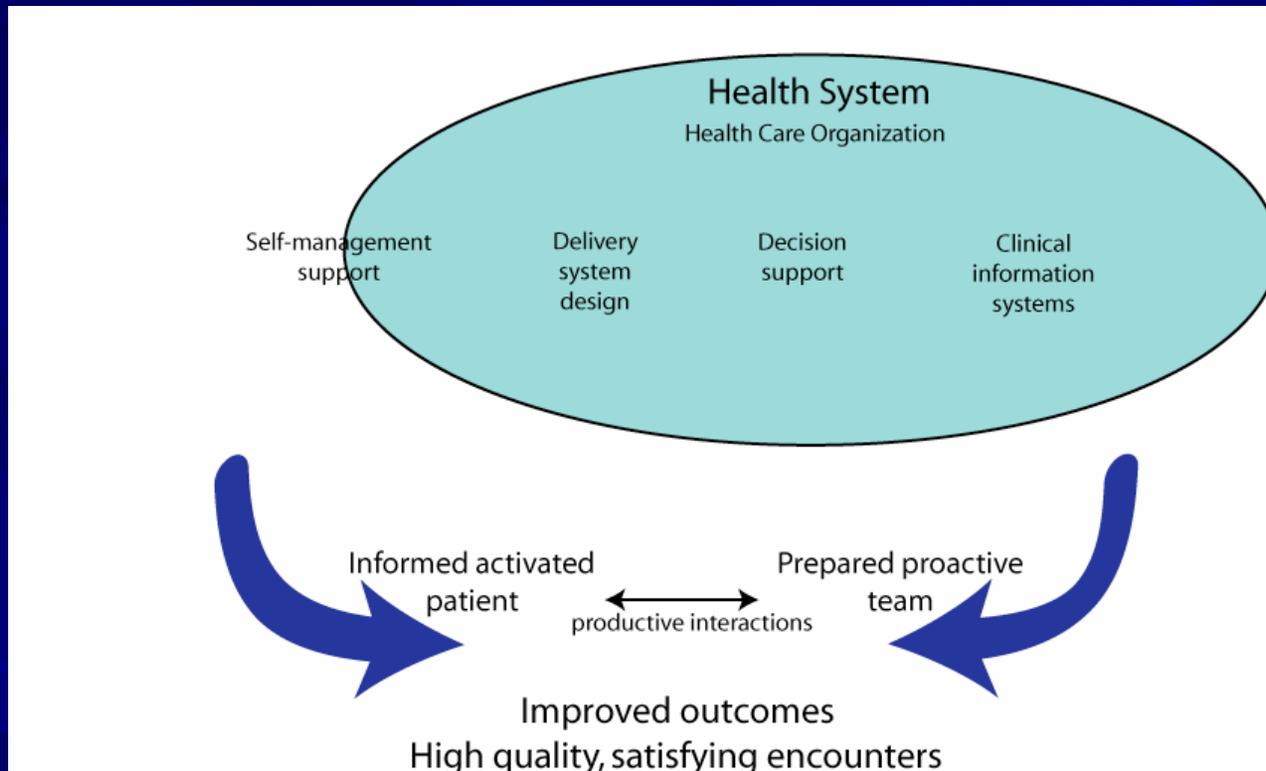
A roadmap to guide the solution to complex systemic problems, address the mismatch between needs of patients with chronic illness and a care system designed for acute illness.



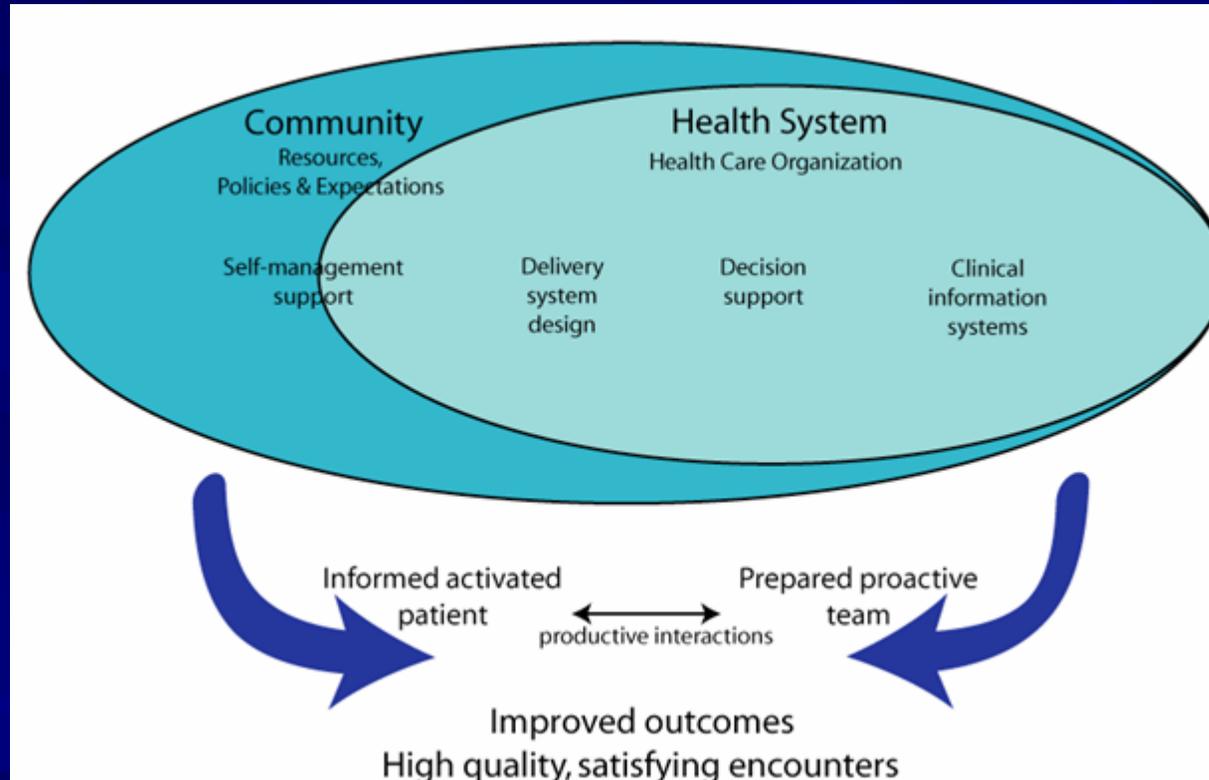
The Chronic Care Model Applied to Foot Ulcer Care



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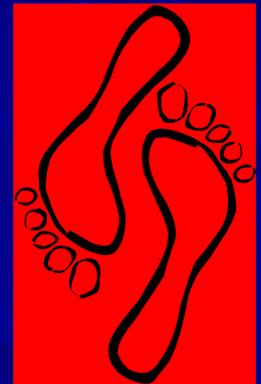
The Chronic Care Model Applied to Foot Ulcer Care



What Is Good Wound Care?

→ Set of principles that should be applied to every patient at each encounter

- Debride callus, devitalized tissue
- Measure the wound
- Treat *invasive* bacterial infection
- Offload weight
- Provide moist wound healing environment
- Provide a global assessment
- Schedule regular follow-up—continuity of care



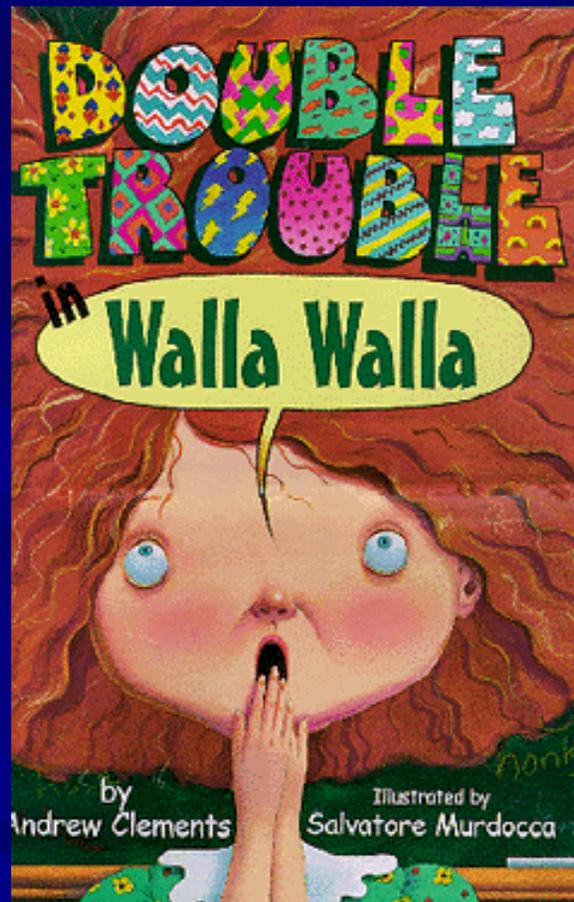
Key Questions

- ? Will **good wound care** be delivered and documented more frequently in diabetic foot ulcer patients during the intervention period compared to the comparison period?
- ? Will delivering a package of **good wound care** to veterans be associated with decreases in time to healing and increases in ulcer-free survival?

Key Questions

- ? Will delivering a package of **good wound care** improve patient, provider, and institutional acceptance for organized foot ulcer care?
- ? Will a package of **good wound care** be safe and transportable for a subsequent VA clinical trial of diabetic foot ulcer treatment in non-tertiary care facilities?

Identifying a place in need of a diabetic foot ulcer intervention?



Walla Walla VA

Primary and Secondary Care VA Medical Center

- Serves ~70,000 veterans; catchment area of 42,000 square miles
3 CBOC's
- 12.5 primary care providers
 - 1 hospitalist
 - 3 PCP have specialty training (one endo, one pulmonary, one infectious diseases)
 - No full-time specialists
 - Community podiatrists – contract care
- 26-bed Skilled Nursing Home



Walla Walla Project

Hypothesis: Delivering a package of good wound care in a non-tertiary care VA center will be **feasible, acceptable, and safe**

Timetable

			Study Interval (24 Months)		
Study Activity:	Comparison Period; Abstract Medical Records	No Activity	Startup Period and Record Reviews	Intervention Period; Foot Ulcer Team Provides Treatment	Follow-up Period; Analyze and Disseminate Findings
Time Interval:	24 months	6 months	9 months	12 months	3 months

Foot Ulcer Treatment at WWVA

1. Review of administrative data on foot ulcers and amputations

180 foot ulcer coded patients in 2003-4

- 125 unique patient records
- 26 had diabetic foot ulcer (diabetes, at least one foot, and an ulcer at or below the malleoli – 21%)
- 99 did not have a diabetic foot ulcer - decubitus ulcer, acute trauma (e.g. punctures, or insect bite), acute arterial insufficiency (e.g. dry gangrenous toe), surgical wounds or the result of vasculitis, pyoderma gangrenosum, gout... (79%)

Good Wound Care Delivery Walla Walla 2003-4

Element of GWC	1 st visit N = 26	f/u visits N = 81
Glycemic control documented	35%	n/a
HbA _{1c} reported	42%	n/a
Peripheral circulation documented	46%	n/a
Sensory exam documented	27%	n/a
Anatomic abnormalities documented	15%	n/a
Debridement performed	4%	16%
Wound measurements (l x w) recorded	23%	21%
Global assessment recorded	n/a	41%
Statement of infection (or not)	73%	75%
Offloading strategy documented	35%	35%
Moist wound healing prescribed	19%	35%

2) Assessed institutional interest level (administration and providers)

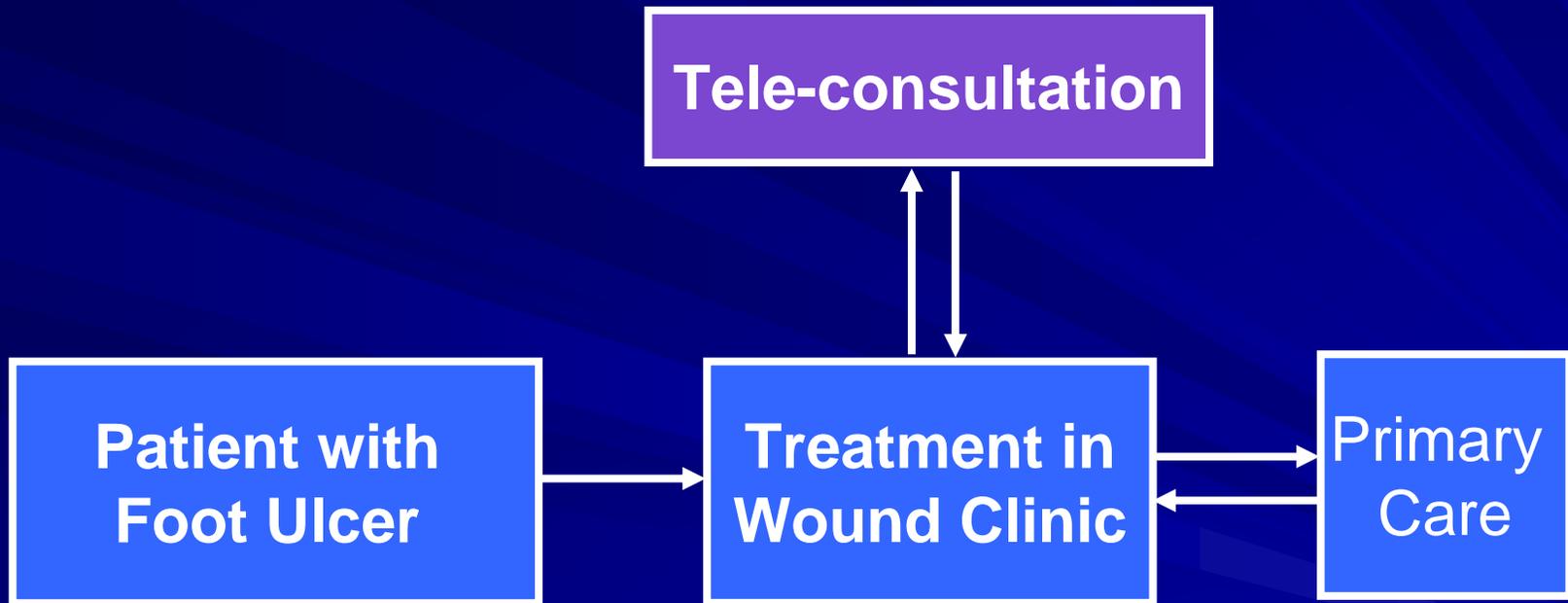
- Interviews with key Walla Walla VA and community providers
- Surveyed providers, 77% responded; identified a need for organized wound care
- CMO identified personnel for wound care team

3) Wrote, negotiated, and signed a cooperative agreement with the site PI (CMO)

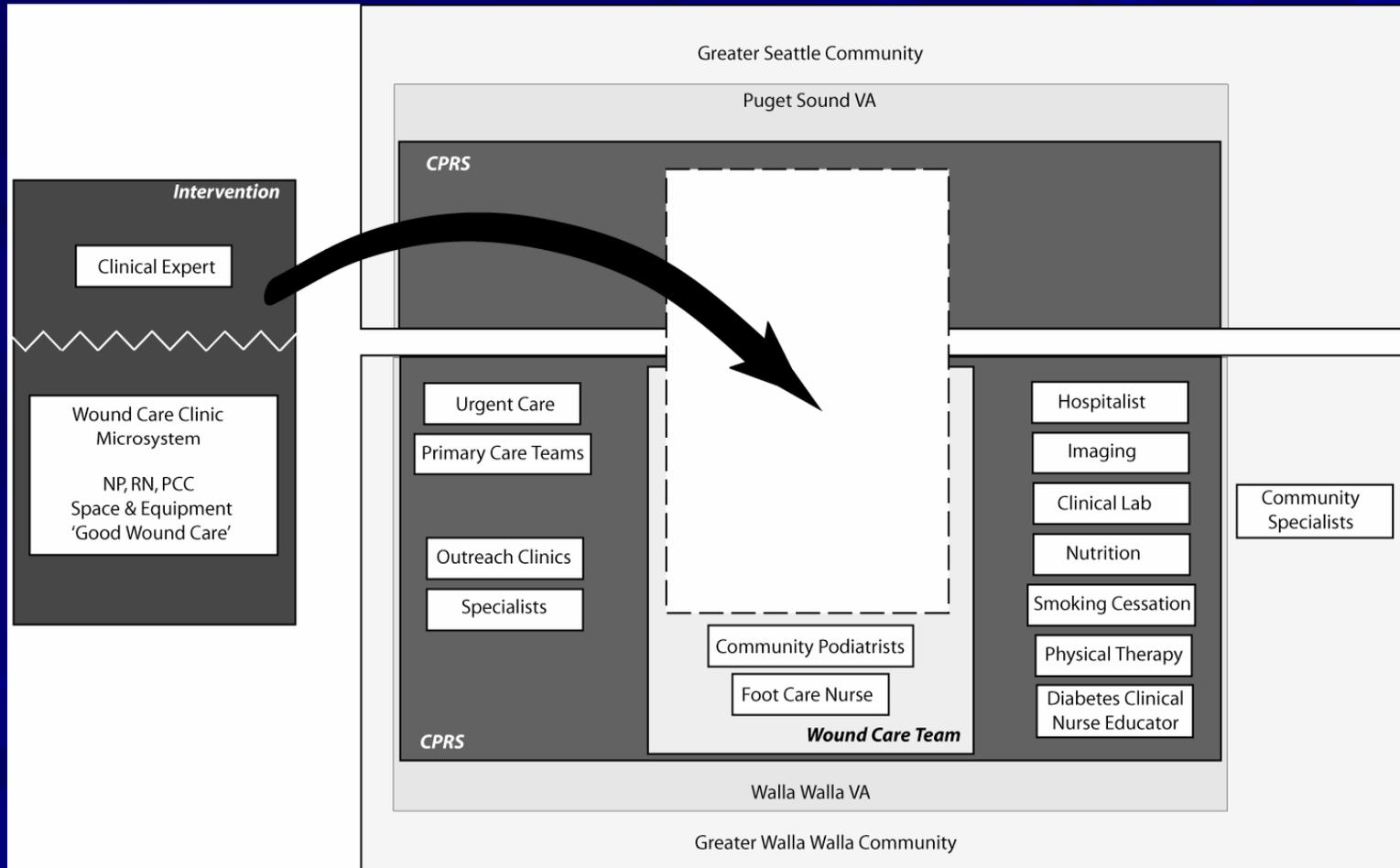


- ✓ We agreed to purpose, time frame
- ✓ Walla Walla leadership selected people
- ✓ We train and monitor team
- ✓ We both provide resources (as did VISN 20)
- ✓ We provide clinical back-up
- ✓ We provide Foot Ulcer CPRS template

Core Organization and Flow



The Walla Walla Model



Start-up Period Victories

- Training team members
 - PA - Carol Flaughner-Rupe
 - RN - Royalann Evans
 - PCC - Sara Uribe
 - Offloading therapist - Jennifer Miller
- Organizing a NEW Clinic; scheduling system
- Pharmaceutical and dressing formulary
- Same day, on site off-loading or footwear
- Coordination with Primary Care, CBOC's, Community Podiatrists, Tertiary Care Centers – developed care pathways
- Tele-wound consults, weekly phone card rounds and 24/7 back-up
- Continuing foot education bimonthly w/community



Chart Note Template

Reminder Dialog Template: Diabetes Foot Ulcer - Part I

PATIENT PROFILE AND CHIEF COMPLAINT

Profile:
Age: 77
Gender: FEMALE

Diabetes profile:

Consent signed and in chart?
 Yes
Study ID number: * 12345
 No

Diabetes Foot Care Survey completed?
 Yes
 No

A1C (Last 3):
Hemoglobin A1c results - past year:
OUTSIDE A1C
OUTSIDE A1C GREATER THAN 11.0 11/14/2005
12.1

Order HbA1C
 Well-controlled (A1C < 8)
 Poorly controlled (A1C > or = 8)

Visit Info Finish Cancel

PATIENT PROFILE AND CHIEF COMPLAINT

Profile:
Age: 77
Gender: FEMALE

Diabetes profile:

Health Factors: **CONSENT SIGNED & IN CHART-YES (DFU)**, DATE SINCE COMPLETELY HEALED (DFU) (Historical)

* Indicates a Required Field

Making the Clinical Information System Work

- Notebook computers with stylus
- Foot ulcer data collection template built into CPRS
- Automatically gathers information from prior encounters and “feed forward” to today’s visit
- Based on principles of “good wound care” thus collects and integrates the proper data
- Prevents important deletions
- Allows oversight by off-site experts/case managers; pictures, x-rays, images shared
- Streamlines ordering, justifies coding, and documentation
- Facilitates communication with PCPs

Start-up Period Findings

Distribution of Wound Diagnoses

- 88 unique veterans in 8 months
- 28% diabetic foot ulcers

Individualized patient problem solving based on baseline diabetes survey

Patient Satisfaction - veterans mail Seattle a 1 page satisfaction survey after each visit – uniformly describe care as “excellent”

Needed full 9 months to prepare intervention

The Future

VISN 20 Network of Wound Care VA Puget Sound - Magnet

Providers interested and willing to work together

- CPRS templates by type of wound
- Computer experts (CAC) develop with clinicians
- Training and retraining on evidence based info
- Wound care procedure manuals
- Formularies for wound care medications and products
- Wound care providers highly valued, supported!

VISN 20

What are the VISN 20 Wound Problems?

	<u>% Diabetes</u>	<u>Total N</u>
Foot ulcers	47	3,140
Venous ulcers	55	1,794
Arterial ulcers	46	733
Pressure ulcers	28	1,281
Minor amputations	83	108
Major amputations	72	95

Who is Next?

✓ Seattle/American Lake



✓ Roseburg
– Eugene CBOC



Summary and Conclusions

- Excellent scientific evidence supports good wound care elements
- *Good Wound Care* is not difficult—it is repetitive, physically demanding, patient centered and *time-consuming*
- It is all about the details (organization, personnel, CPRS)
- We hope to decrease the “*Double Trouble in Walla Walla* ” by the end of the intervention!