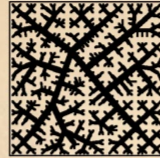
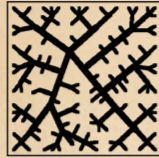
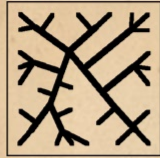
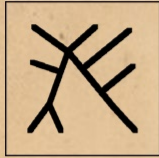


## Marc E. Gottlieb, MD, FACS

*A Professional Corporation*

## PLASTIC & RECONSTRUCTIVE SURGERY

*Board Certification ••• ••• ••• Plastic Surgery ••• Hand Surgery ••• General Surgery*



Specializing in the treatment, reconstruction, and management of  
Acute and chronic wounds • Diseases and defects of the soft tissues • Injuries,  
diseases, and defects of the hand and extremities • Defects of the head and trunk

---

**Office:** 1415 N. 7th Avenue • Phoenix, AZ 85007

**Phone** 602-252-3354

**Fax** 602-254-7891

**megott@arimedica.com**

---

## Marc E. Gottlieb, MD, FACS

1415 N. 7th Avenue  
Phoenix, AZ 85007

Phone 602-252-3354  
Fax 602-254-7891

megott@arimedica.com

Copyright © 2005, Marc E. Gottlieb, MD

Content may be used for non-commercial educational purposes.

Content may not be published or used for commercial purposes without prior license or permission.

# WOUNDS AND ULCERS IN GERIATRIC PATIENTS

Marc E. Gottlieb, MD, FACS

COMMON PROBLEMS AND SENSIBLE MANAGEMENT



Arizona Geriatrics Society – 2005  
17th Annual Fall Conference & Symposium



# WOUNDS IN GERIATRIC PATIENTS

Common Problems Made Prevalent

Common Problems Made Difficult

Unique Problems





# **WOUNDS IN GERIATRIC PATIENTS**

**Common Problems Made Prevalent**

**Common Problems Made Difficult**

**Unique Problems**





# WOUNDS IN GERIATRIC PATIENTS

Common Problems Made Prevalent

Common Problems Made Difficult

Unique Problems





# WOUNDS AND ULCERS IN GERIATRIC PATIENTS

## SECTION A

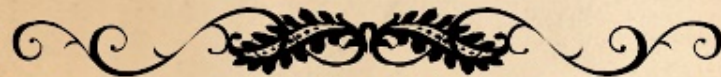


# INTRODUCTORY CONCEPTS



# GERIATRIC WOUNDS

---



## WOUNDS



### Basics of Good Care

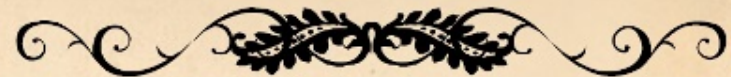
management principles

diagnosis

acute care

chronic care

technologies & modalities



## GERIATRICS



### Changes with Age

physiological

physical

functional

neurological & psychiatric

social & economic



# GERIATRIC WOUNDS



## Changes with Age Which Predispose to Wounds and Wound Problems

### Increased Risk

tissue atrophy  
altered circulation  
edema  
co-morbidities  
progressive pathology  
illness & hospitalization  
regulatory insufficiency  
in non-linear systems

### Diminished Care

weight  
strength  
eyes & ears  
arthropathies  
motor function  
loss of mobility  
intellectual & dementia  
psychiatric

### Diminished Resources

loss of family & friends  
loss of familiar venue  
economic insecurity  
insufficient finances  
loss of transportation  
personal management  
conflicts with other rx



# WOUNDS AND ULCERS IN GERIATRIC PATIENTS

## SECTION B



# THE DISEASES AND THE DIAGNOSES



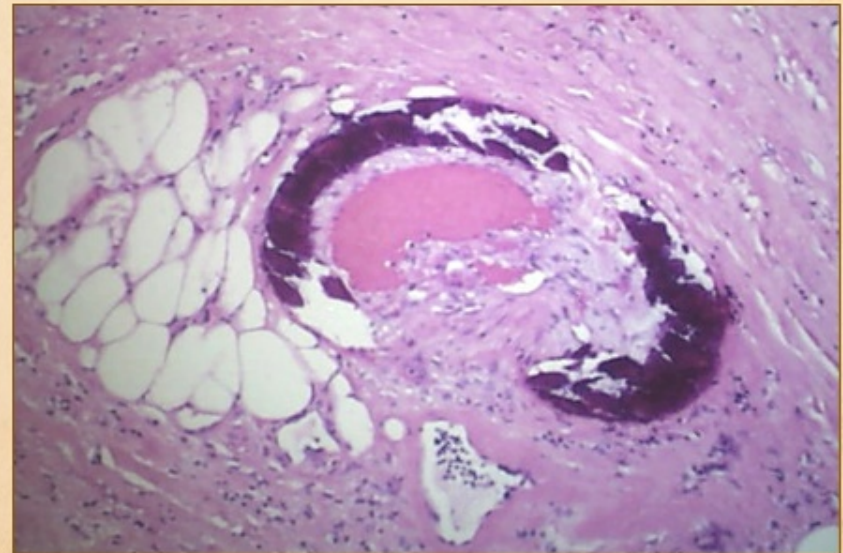
# WOUNDS AND ULCERS IN GERIATRIC PATIENTS

• 1 •

Common Causes and Diagnoses

• 1 •

## ATHEROSCLEROSIS

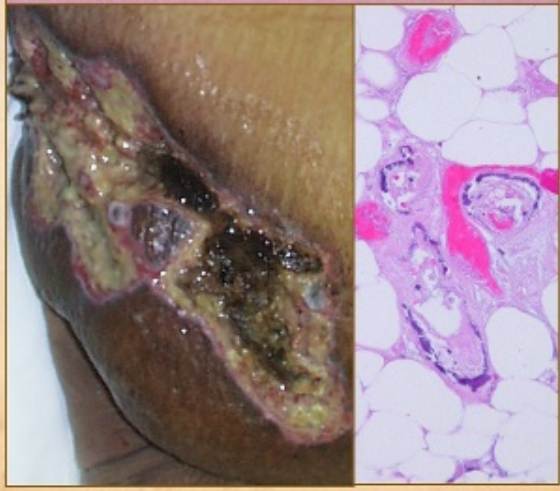




# GERIATRIC WOUNDS    **ATHEROSCLEROSIS**    COMMON DIAGNOSES



PARATHYROID HOR @ 472hf  
CALCIUM FOR PTH @ 8.9





# WOUNDS AND ULCERS IN GERIATRIC PATIENTS

• 2 •

Common Causes and Diagnoses

• 2 •

## CANCER

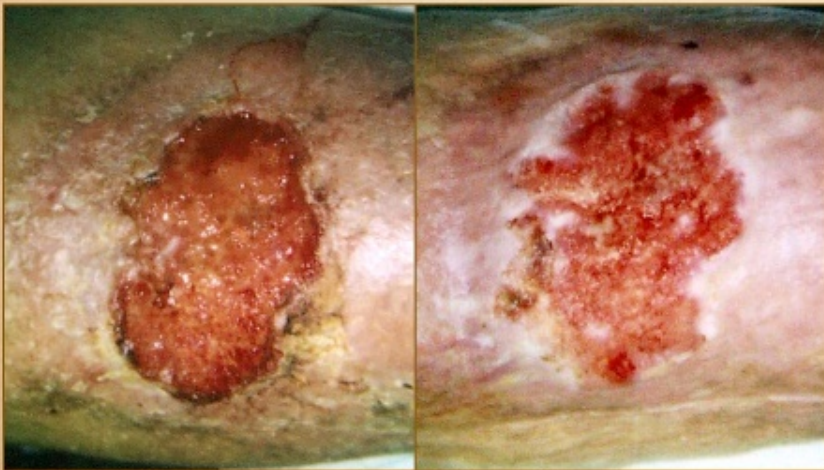




GERIATRIC WOUNDS

# CANCER

COMMON DIAGNOSES





# WOUNDS AND ULCERS IN GERIATRIC PATIENTS

• 3 •

Common Causes and Diagnoses

• 3 •

## TRAUMA





## GERIATRIC WOUNDS

# TRAUMA

## COMMON DIAGNOSES

### COMMON CAUSES

Falls & Impacts  
Bruises & Hematomas  
Avulsions & Lacerations  
Burns & scalds  
Fractures



### GENERAL STATUS

Disabilities causing  
increased risk of injury

Diminished capacity &  
compliance with care

Wound healing  
usually normal



### GERIATRIC RISKS

Frailty  
Diminished capacity  
Impaired vision-hearing  
Impaired mobility  
Impaired balance  
Altered posture  
Tremors & neuro

Skin atrophy & fragility  
Problematic drugs  
Osteoporosis  
Dependence  
Dementia



# WOUNDS AND ULCERS IN GERIATRIC PATIENTS

• 4 •

Common Causes and Diagnoses

• 4 •

## VENOUS, EDEMA, POSTURAL





**GERIATRIC  
WOUNDS**

# **VENOUS, EDEMA, POSTURAL**

**COMMON  
DIAGNOSES**

**Venous stasis - hypertension, Postural edema, Inflammatory edema, Dermatitis**  
CHF-COPD-HTN, Renal, Liver, Immune, Coagulopathy, Various Dx, Obesity, Disability, Psychosocial





# WOUNDS AND ULCERS IN GERIATRIC PATIENTS

• 5 •

Common Causes and Diagnoses

• 5 •

## PRESSURE & CONTACT





GERIATRIC WOUNDS

# PRESSURE

COMMON DIAGNOSES

## PHYSICAL

Afferent neuropathy (sensation)  
Efferent neuropathy (palsy)  
Acute & chronic disabilities  
Psycho-socioeconomic factors

Pressure  
Tension - shear  
Motion  
Musculoskeletal anatomy  
Skin injury  
Dermatoses  
Anatomical pathology  
Posture biomechanics

## CLINICAL

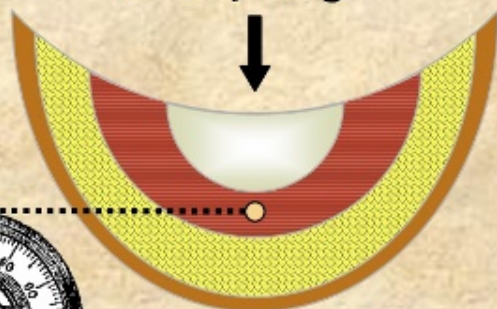
Pressure ulcer  
Shear ulcer  
Closed pressure bursa  
Contact ulcer  
Burns and injury  
Intertriginous ulcer  
  
Urinary fistula  
GI fistula  
Spinal abscess  
Pelvic abscess  
Inflammatory bowel disease  
Hidradenitis & pilonidal

**BEDSORES    SADDLE SORES**  
**OTHER PERINEAL ULCERS**

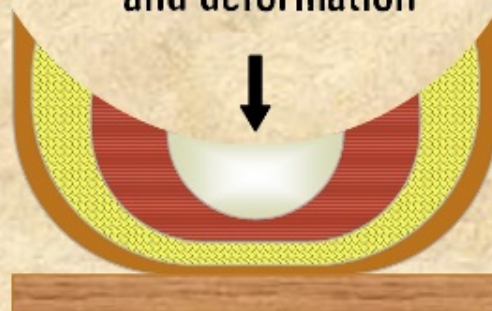


# PRESSURE ULCERATION

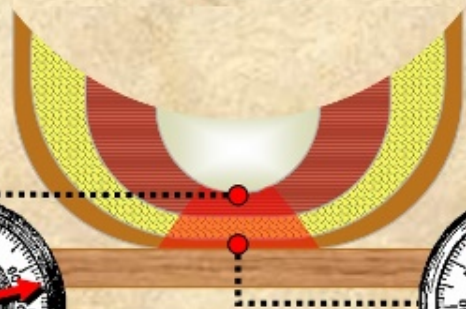
resultant force  
of body weight



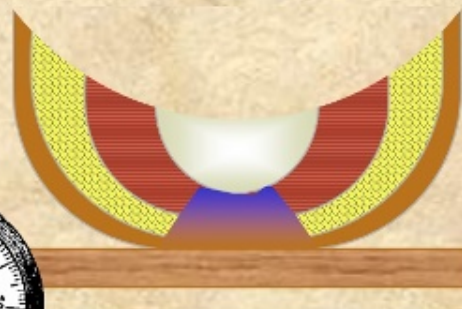
compression loading  
and deformation



compression = force per area  
compression > capillary BP  
= ischemia



pressure-time integral =  
net ischemia =  
net necrosis



Efferent  
neuro deficits  
*can't move*

Afferent  
neuro deficits  
*can't feel*

Psychiatric deficits  
*no motivation*

Social deficits  
*no resources*

Adverse  
biomechanics  
*stress-strain*

Repetitive injury

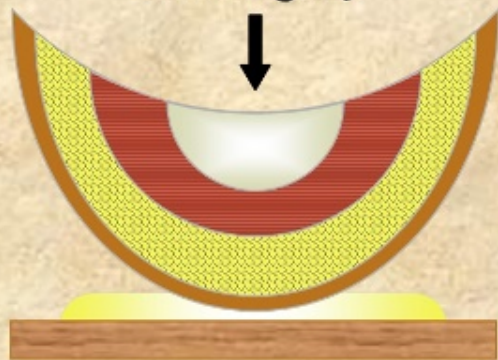
Normal  
wound healing



# SHEAR AND CONTACT ULCERATION

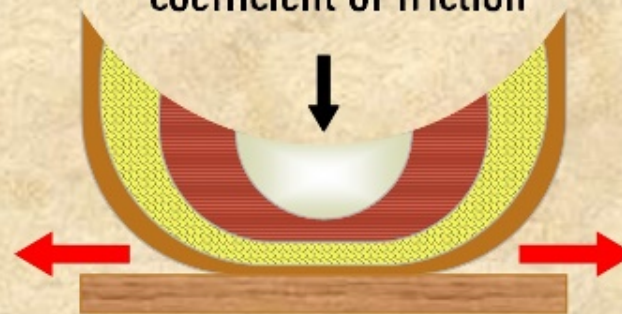
## PROPER CONCEPTS and TERMINOLOGY

maceration, inflammation,  
skin fragility

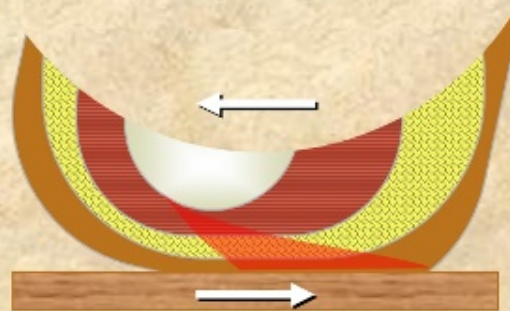


tangential force & motion, friction

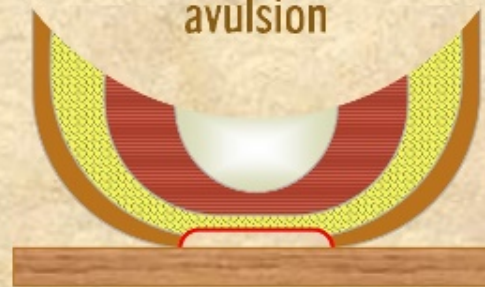
compression loading  
coefficient of friction



shear stress  
shear strain



injury due to shear  
blisters  
desquamation  
avulsion



**Pressure ulcer**  
*closed bursa*  
*shear ulcer*  
*contact ulcer*  
*dermatitis*  
*intertriginous ulcer*

**“Non-pressure”**  
*burns and injury*  
*vascular infarction*  
*iliac aso/pvod*  
*calciphylaxis*  
*coincidental events*

**Decubitus**  
*bedsores*  
*other postures*

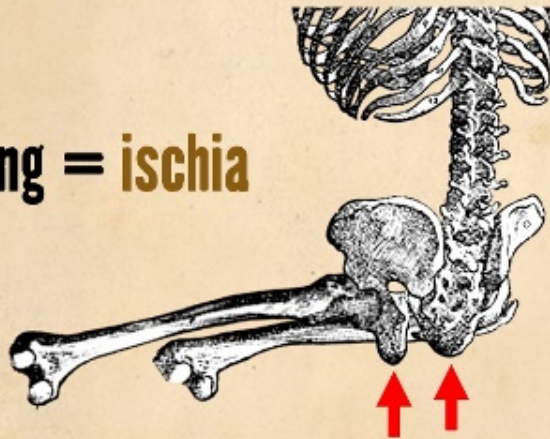




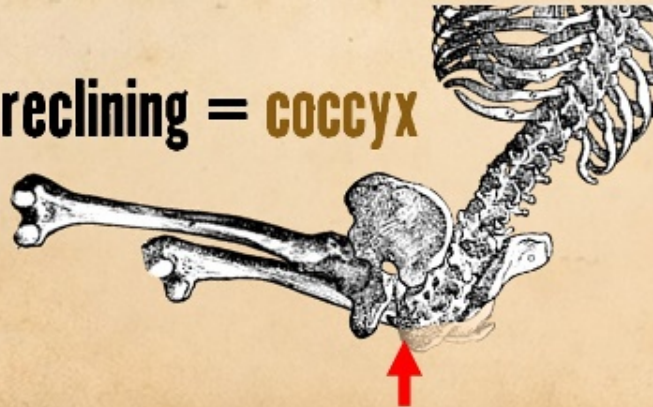
lying =  
sacrum &  
sacro-iliac



sitting = ischia



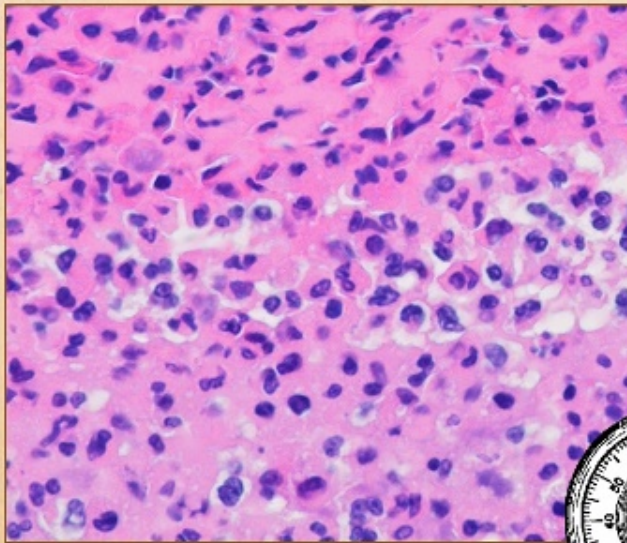
reclining = coccyx



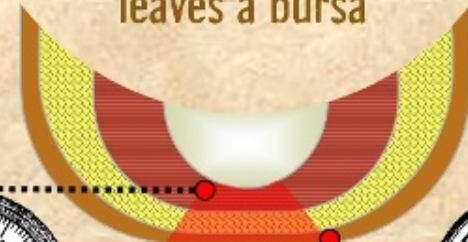








pressure necrosis is  
volumetric  
full thickness  
leaves a bursa





WHERE-THE-SUN-DON'T-SHINE THEATER

PRESENTS

SADDLE SORE TALES

**FAREWELL  
ESCHAR, GO**

Presented at a Snail's Pace

**Starring**

Larry Leadbottom, *the Gimpalong Cowboy*  
Billy "Beef Jerky" Buttbound, *his sidekick*

**with**

Penelope Pemican, *nurse ingenue*  
Stinky McOdor, *the alarmist*  
Mack Roefage, *gold miner*  
Auntie Biotic, *gold digger*  
Doc Rongeur, *problem solver*  
Dudley Dowrong, *ne'er do well*  
Betty Bursa & Sally Sinus, *the chorus*  
*and as the Narrator*  
"Snake Eyes" Slimy Sluggo



**RE  
MEM  
BER**

Pressure necrosis  
is full thickness,  
from skin to bone.

Understand the  
biology of pressure  
injury & evolution.

**DO  
NOT  
CON  
FUSE**

pressure necrosis  
with other causes  
of ulceration.



# **PRESSURE AND RELATED**

---

**They are due to complex physical-adaptive & psycho-socio-economic factors.  
Pressure and related ulcers are trauma, not disease, and largely benign.**

**BE EDUCATED. BE PROFESSIONAL. DON'T BE AN ALARMIST.**

---

Be discriminating about anatomy and terms  
Make correct diagnosis & means of injury  
Ascertain the biomechanics of each ulcer  
Understand pressure vs. shear vs. contact

Understand psychological and mental status  
Understand physical capacity and needs  
Understand family, support, lifestyle  
Formulate a comprehensive plan of care

---

**DO FORMULATE AN INTELLIGENT STRATEGIC PLAN OF CARE.**

**The causes must be relieved, but do not kill the patient with concern.  
All must be managed - but - NOT all can nor SHOULD be closed and cured.**



# WOUNDS AND ULCERS IN GERIATRIC PATIENTS

• 6 •

Common Causes and Diagnoses

• 6 •

## NON-GERIATRIC





**GERIATRIC WOUNDS**

# **NON-GERIATRIC**

**COMMON DIAGNOSES**

## **ULCEROGENIC SOFT TISSUE PATHOLOGY**

Problems not unique to geriatrics, but which cause more problems with advancing age: more wounds, impaired healing, impaired care .

**Diabetes Immunopathic Hematological**





# WOUNDS AND ULCERS IN GERIATRIC PATIENTS

## SECTION C



# CAVEATS, PITFALLS, AND SPECIAL PROBLEMS IN GERIATRIC PATIENTS



# CAVEATS, PITFALLS, PROBLEMS





# CAVEATS, PITFALLS, PROBLEMS

**GERIATRIC WOUNDS MUST OFTEN BE MANAGED WITH A DIFFERENT SET OF PLANS AND PRIORITIES**

## Changes with Age Which Predispose to Wounds and Problems

### Increased Risk

tissue atrophy  
altered circulation  
edema  
co-morbidities  
progressive pathology  
illness & hospitalization  
regulatory insufficiency  
in non-linear systems

### Diminished Care

weight  
strength  
eyes & ears  
arthropathies  
motor function  
loss of mobility  
intellectual & dementia  
psychiatric

### Diminished Resources

loss of family & friends  
loss of familiar venue  
economic insecurity  
insufficient finances  
loss of transportation  
personal management  
conflicts with other rx





# CAVEATS, PITFALLS, PROBLEMS

---

**GERIATRIC WOUNDS MUST OFTEN BE MANAGED WITH A DIFFERENT SET OF PLANS AND PRIORITIES**





# CAVEATS, PITFALLS, PROBLEMS

The cost of inexpert care.  
The price of unnecessary hospitalization.



<b>THERAPEUTIC DRUG MONITORING</b>	
VANCOMYCIN	28.3
VANCOMYCIN (09/12/01 -- Current)	
TROUGH:	< 10 UG/ML
PEAK:	15-35 UG/ML
<b>MISCELLANEOUS</b>	
ORDERED TEST:	CLOSTRIDIUM DIFFICILE TOXIN 02-21
COLLECTED:	08/06/02 1727
SOURCE:	STOOL
FINAL REPORT	08/06/02 2242
CLOSTRIDIUM DIFFICILE TOXIN POSITIVE ; Report called the Nurse's station.	



# CAVEATS, PITFALLS, PROBLEMS

## THE MAJOR MISTAKES #1



**NOT UNDERSTANDING THAT WOUNDS HEAL, BY NATURE.**



# CAVEATS, PITFALLS, PROBLEMS

## THE MAJOR MISTAKES #2



### PRINCIPLE #1

Healthy wounds and hosts heal. This is normal.  
For wounds in healthy people, DO NOT hinder normal wound repair, nor create new injury.

### PRINCIPLE #2

When repair is incompetent, or disease is causing necrosis & ulceration, then wounds do not heal.  
With chronic and pathological wounds, you must find out what the disease or injury is, or what is inhibiting repair, then correct those problems.

**DOING TOO MUCH. DOING WRONG THINGS. DOING UNNECESSARY THINGS.**



# CAVEATS, PITFALLS, PROBLEMS

---

## THE MAJOR MISTAKES #3

Thinking that every wound must be cured.  
In the panic to “cure” each wound, forgetting to manage it.

Erroneous diagnosis, terminology, and knowledge of the condition.  
Ordering lots of irrelevant tests and imaging.

Thinking that everything is an infection. Giving antibiotics.

Putting people in the hospital. Creating panic and fear.

Not controlling injury and disease. Not controlling symptoms.  
Missing any of the proper care.

**MAKING UNNECESSARY TROUBLE,  
WHILE NOT DOING NECESSARY CARE.**



# WOUNDS AND ULCERS IN GERIATRIC PATIENTS

## SECTION D



# WOUND MANAGEMENT AND METHODS



# WOUND MANAGEMENT - THE BASIC SCHEMA



**PHASE 1**  
**MANDATORY Rx**  
Wound Control

**PHASE 2**  
**DISCRETIONARY Rx**  
Definitive Care and Resolution

**PHASE 3**  
**FOLLOW-UP Rx**  
Maintenance Care

Control the wound & the disease.

Make the wound healthy,  
non-threatening, asymptomatic.

identify causative disease and risks  
refine and reconcile rx

establish good wound hygiene  
control topical risks  
debride the wound  
control edema  
treat pathological inflammation

treat contributing disorders  
e.g. revascularize, offload,  
anti-immune & anti-coagulant therapy



# WOUND MANAGEMENT - THE BASIC SCHEMA



## PHASE 1

**MANDATORY Rx**  
Wound Control



## PHASE 2

**DISCRETIONARY Rx**  
Definitive Care and Resolution

## PHASE 3

**FOLLOW-UP Rx**  
Maintenance Care

Plan & implement realistic treatment goals:  
closure, palliation, or other resolution.

expert evaluation and treatment  
for related disorders

correct intrinsic wound module deficits  
stabilize rx of underlying diseases

curative modalities as indicated:

surgery

nursing services

wound stimulatory therapies

devices & drugs

hyperbaric O<sub>2</sub>



# WOUND MANAGEMENT - THE BASIC SCHEMA



## PHASE 1

**MANDATORY Rx**  
Wound Control

## PHASE 2

**DISCRETIONARY Rx**  
Definitive Care and Resolution



**PHASE 3**  
**FOLLOW-UP Rx**  
Maintenance Care

Maintain control to prevent  
flare-ups & recurrence.

keep underlying diseases controlled  
long term control of edema and inflammation  
skin care  
rehabilitation  
maintain orthotics  
periodic surveillance  
rapid intervention for flare-ups

"Palliative" or "Maintenance" care for those who  
cannot be cured, applying the same principles of  
chronic preventive management, maintaining  
"control" at all times, never losing control.



# WOUND THERAPIES: BASIC AND ADVANCED

---

**1** Basic Rx: Fundamentals of management and preventive care **3**

**Wound control and maintenance**

Hygiene - Topicals - Dressings - Skin Care  
Edema & Inflammation Control  
Disease & Injury Control

---

**2** Advanced Rx: Technology in support of new paradigms of care **2**

**Environment regulating therapies**

VAC, Promogran & Prisma

**Wound stimulatory therapies**

PDGF - Becaplermin, Apligraf

**Regenerative therapies**

Integra



# MANAGEMENT TOOLS



**The Doctor  
Prescribes**



**The Nurse Treats**

## ALLIED HEALTH

Home health agencies  
Nursing services  
Social services  
Other allied health  
Caretakers  
Family  
Care facilities  
Wound clinics

## INDUSTRY SUPPORT

Manufacturers  
Medical supply  
Durable equipment  
Prescription fulfillment  
Transportation services

## GOVERNMENT

State resources  
Federal regulations  
Social resources  
Psychiatric services  
Insurance issues  
Help vs. hindrance  
Arizona vs. other states



# WOUNDS AND ULCERS IN GERIATRIC PATIENTS

## SECTION E



# HOW-TO'S AND PRACTICAL GUIDES



# Rx: A GUIDE TO MANAGE SELECT WOUNDS

## BASIC PARADIGMS OF CARE

Wound Hygiene - Dressings - Skin Care - Edema Control - Inflammation





# Wound Hygiene - Dressings - Skin Care - Edema Control - Inflammation



15 g  
**Desoximetasone Cream USP, 0.25%**

FOR EXTERNAL USE ONLY  
NOT FOR OPHTHALMIC USE

**CAUTION:** Federal law prohibits dispensing without prescription.  
Keep this and all medication out of the reach of children.

Directions for puncturing tube seal: Remove cap. Turn cap upside down and place puncture tip over tube. Push cap until tube end is punctured. Screw cap back on to reseat tube.  
Mfg. by: TARO Pharmaceuticals, Inc.  
Burlington, Ontario, Canada L7R 4K6  
Distributed by: TARO Pharmaceuticals U.S.A., Inc., Hawthorne, NY 10632





# BRUISING AND LACERATIONS



## Proper management when acute

benign - low acuity  
reduce and repair  
convert to graft

## Control edema & fragility

skin care  
edema control  
compression & protection wrapping

## Treat until healed or surgery

basic care until healed  
- versus - skin grafts  
education; long term prevention





Initials RE  
Date 5/5/03 Wounds 1  
Location L. leg  
NATIONAL HEALING CORPORATION



Initials RE MR# 130180  
Date 7-17-03 Wounds 3  
Location L post leg  
NATIONAL HEALING CORPORATION



# POSTURAL AND VENOUS STASIS

## Skin care & dermatitis Rx

hygiene; coal tar - keratolytics  
topical (& oral) steroids  
medicated dressings  
NO antibiotics

## Control edema & venous HTN

elevation  
compression  
more compression  
personal habits

## Continue until healed

transition to compression garments  
- or - other suitable edema control  
education; long term prevention



# ARTERIAL AND ISCHEMIC

## Judicious acute care

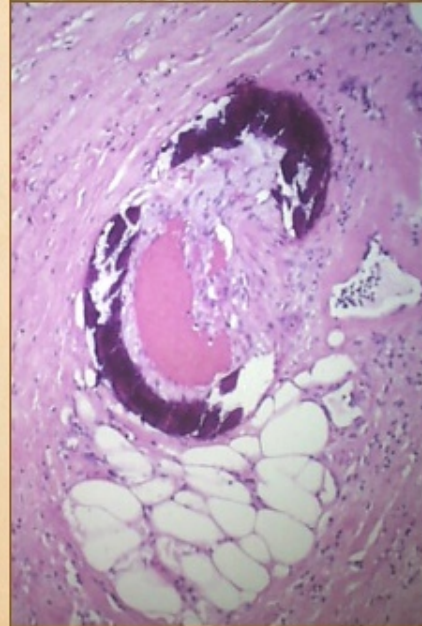
hygiene & silvadene  
careful bandaging  
pharmacology

## Revascularize

vascular lab & consultation  
hyperbaric O<sub>2</sub>  
surgery

## Treat until healed

strategic planning:  
topical care  
-vs- surgery to close  
-vs- amputation





# STRATEGIC MANAGEMENT





# STRATEGIC MANAGEMENT





# PRESSURE INJURY AND ULCERS

## Proper management when acute

good hygiene  
moisture control & skin care  
practical wound care  
timely debridement  
topicals, VAC

## Control pressure and contact

bedding  
splints & orthotics  
wheelchair & cushion

## Resolve disability - dependency issues

strategic planning  
nursing - family - independence





# STRATEGIC MANAGEMENT





# STRATEGIC PLANNING

---

TO HEAL OR NOT TO HEAL  
SURGERY OR NOT

HOME VS ECF  
SUPPORT AND CARETAKERS  
FINANCES AND EXPENSES

GENERAL HEALTH OF THE PATIENT  
REALISTIC TREATMENT PLANS  
QUALITY OF LIFE



# WOUNDS AND ULCERS IN GERIATRIC PATIENTS

## SUMMARY

Wounds are benign and safe when properly cared for.  
Complications and morbidity accrue to overly ambitious inexperienced care.  
**Thoughtful safe care is especially important in elderly or sick patients.**

All wounds need control of disease, injury, inflammation, and symptoms.  
All wounds need basic hygienic management.  
**Not all wounds need be healed.**

Resource issues are crucial: family, finances, domicile, disabilities, nursing,  
Co-morbidities, and general health and conditioning must be considered.  
Case planning and management must consider all such issues.  
**Safety and quality of life are paramount.**



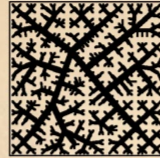
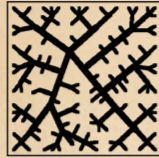
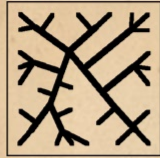
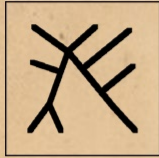


## Marc E. Gottlieb, MD, FACS

*A Professional Corporation*

## PLASTIC & RECONSTRUCTIVE SURGERY

*Board Certification ••• ••• ••• Plastic Surgery ••• Hand Surgery ••• General Surgery*



Specializing in the treatment, reconstruction, and management of  
Acute and chronic wounds • Diseases and defects of the soft tissues • Injuries,  
diseases, and defects of the hand and extremities • Defects of the head and trunk

---

**Office:** 1415 N. 7th Avenue • Phoenix, AZ 85007

**Phone** 602-252-3354

**Fax** 602-254-7891

**megott@arimedica.com**

---

## Marc E. Gottlieb, MD, FACS

1415 N. 7th Avenue  
Phoenix, AZ 85007

Phone 602-252-3354  
Fax 602-254-7891

megott@arimedica.com

Copyright © 2005, Marc E. Gottlieb, MD

Content may be used for non-commercial educational purposes.

Content may not be published or used for commercial purposes without prior license or permission.



