



School of Medicine

# Organization of Rehabilitation and Post-Acute Care

**Inaugural Meeting of NECC**

**Boston, MA - September 13, 2006**

**Janet Prvu Bettger, ScD**

University of Pennsylvania

Department of Physical Medicine and  
Rehabilitation

[janetpr@mail.med.upenn.edu](mailto:janetpr@mail.med.upenn.edu)

Disclosure information: none



School of Medicine

# Presenter Disclosure Information

## FINANCIAL DISCLOSURE

Grants/Research support: None

## UNLABELED/UNAPPROVED USES

DISCLOSURE: None



# Objectives:

## Attendees will be able to:

Construct the rehabilitation and post-acute care (PAC) framework applicable to their geographic area



Understand the evidence supporting rehabilitation and PAC

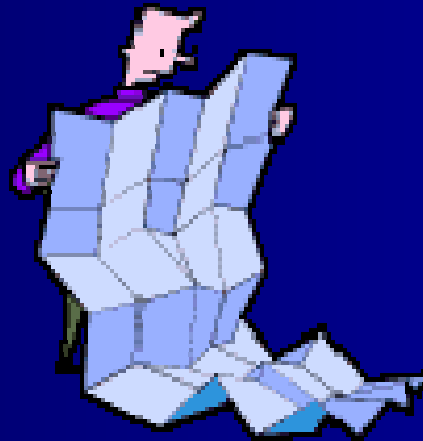


Identify opportunities for collaboration and growth to improve the continuity of care for stroke patients



# What is the full continuum of stroke care?

## Where do rehabilitation and PAC fit?





# What about rehab...

- When should it start?



# Duncan et al. Management of Adult Stroke Rehabilitation Care: A Clinical Practice Guideline. *Stroke*. 2005;36;100-143



“Stroke rehabilitation begins during the acute hospitalization, **as soon as the diagnosis of stroke is established and life threatening problems are under control.**”

## Highest Priorities:

- prevent a recurrent stroke and complications,
- ensure proper mgt of general health functions,
- mobilize the patient,
- encourage resumption of self-care activities,
- and provide emotional support to the patient and family.”



# Are there really any benefits to initiating rehab in acute care?



Improved outcome at hospital discharge and follow up

*(Cifu & Stewart, Arch Phys Med Rehabil. 1999;80:S35–S39 – review)*



Increased number of patients living at home, more independent, improved quality of life, and higher rate of survival at 5 years

*(Indredavik et al., Stroke. 1999;30:917–923.)*



# What can we be working on?

## PROCESS

- Guidelines
- Coordination of care\*
- Individualization
- Amount and Timing
- Interventions

## STRUCTURE

- Accessibility (referral, coverage, location)
- Equipment, Enviro.\*
- Personnel\* (#, type, workload, credentials)

## OUTCOME



*(Modified from Hoenig et al., Arch Phys Med Rehabil. 2000;81:853–862)*

*\* Evidence from VA Services*





# What about PAC? When does that start?

Is it

- a) Clinically after we've completed JCAHO core measures 1-8?
- b) A measure of time since onset?
- c) By pt status, some measure of disability or recovery?
- d) By location of services?
- e) Combination of the above?





# Some definitions



Post-acute rehab stroke services = organized inpt multidisciplinary rehab commencing at least 1 wk after stroke (Langhorne & Duncan, *Stroke*. 2001;32:268–274)

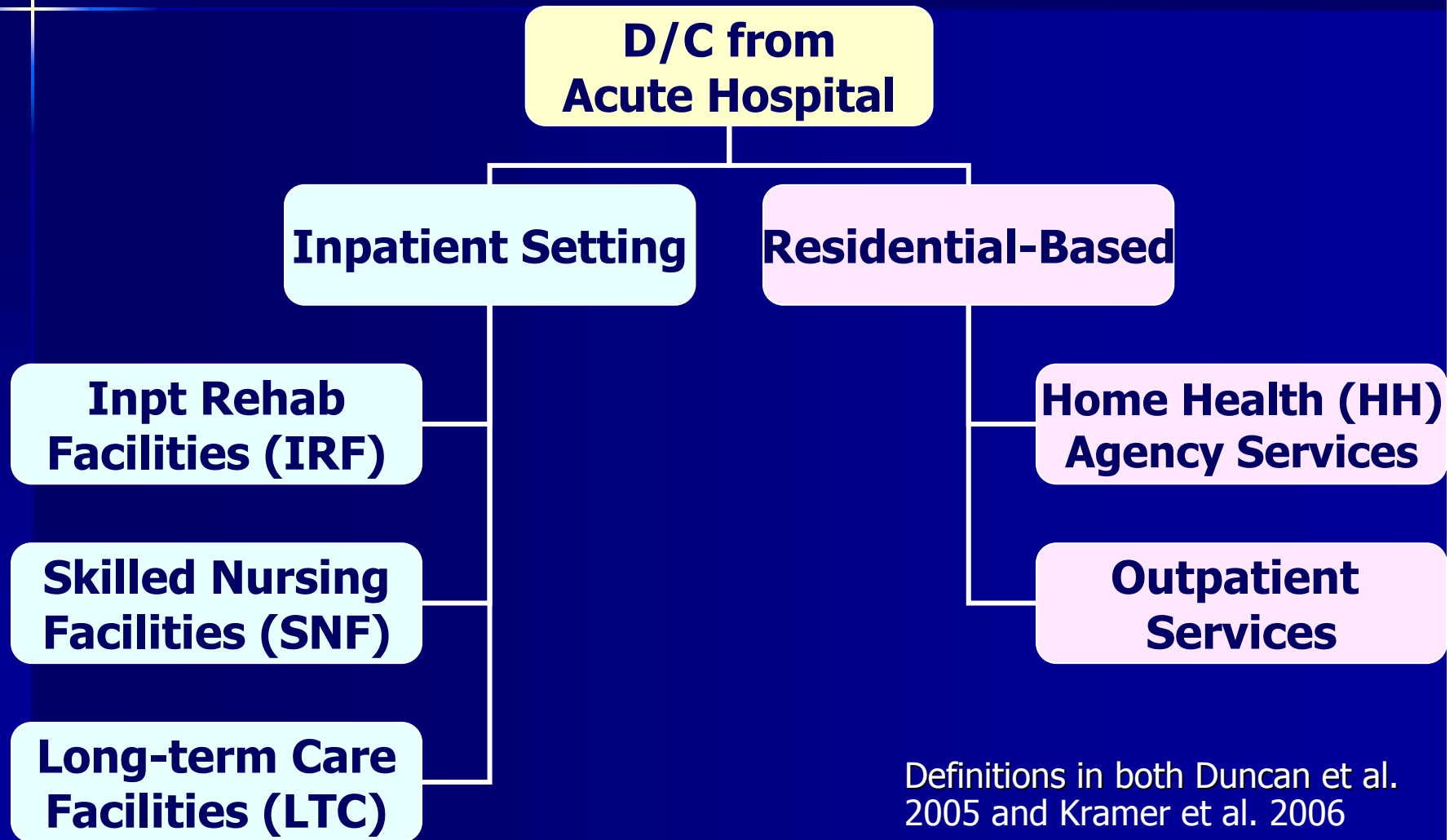


Post-acute stroke = the period of time immediately after d/c from acute care. At that point the stroke pt has achieved medical stability and the focus of care becomes rehab (Duncan et al., *Stroke* 2005;36;100-143)



PAC = Health care following an acute hospitalization (Kramer et al., Uniform Patient Assessment for Post-Acute Care. 2006; Report prepared for CMS.)

# PAC Health Care Services Providing Rehabilitation



Definitions in both Duncan et al. 2005 and Kramer et al. 2006



# Effect of current acute care hospital climate on access to PAC

- Cost containment pressures & the need to discharge patients quickly increases the risk of patients being placed inappropriately before having the opportunity to demonstrate potential for adaptation and recovery



# For Medicare Beneficiaries

- At least 20% have a hospital admission/year
- Admitted for a wide range of reasons including medical, surgical, functional

About 30% will be D/C to PAC, of them:

- 1.2% → LTCH
- 8.2% → IRF
- 45% → SNF
- 38% → HH
- 6% → Outpt

50% of Medicare Stroke D/C to inpt PAC 2001

- 18% → IRF
- 30% → SNF

McCall et al., Millbank Quarterly. 2003;81:277-303.

# Is PAC use determined by clinical characteristics or availability?



(Buntin, *Health Serv Res.* 2005 Apr;40(2):413-34)

- PAC availability is a more powerful predictor of PAC use than clinical characteristics
- Distance to providers:
  - The farther away the nearest IRF is, and the closer the nearest SNF is, the less likely a patient is to go to an IRF.
  - If the hospital from which the patient is discharged has a related IRF or a related SNF the patient is more likely to go there.
- Supply of providers:
  - the fewer IRFs, and the more SNFs, there are in the patient's area the less likely the patient is to go to an IRF.



# Stroke Rehab in PAC

## Focus is on:

- assessment and recovery of any residual physical and cognitive deficits
- compensation for residual impairments

## Outcomes:



Better clinical outcomes are achieved when post-acute stroke patients receive coordinated, multidisciplinary evaluation and intervention in organized and coordinated post-acute inpatient rehabilitation

*(Evans et al., Lancet. 2001;358:1586–1592.  
Langhorne & Duncan, Stroke. 2001;32:268–274)*



# Outcomes by Setting\*



IRF patients more likely to have a community-based d/c regardless of severity compared to SNF patients



IRF pts with severe motor disabilities achieved greater function than in SNF

*(Deutsch, Stroke. 2006;37:1477-1482;  
Kramer et al., JAMA. 1997; 277:396-404.)*

*\* Prior to CARF standards for accrediting Stroke Specialty Programs*



# Is this the end of the continuum?

“Living with disabilities after a stroke is a lifelong challenge during which people continue to seek and find ways to compensate for or adapt to persisting neurological deficits. For many stroke patients and their families, the real work of recovery begins after formal rehabilitation.”

*-- Stroke Rehab Clinical Practice Guidelines*



# What comes after rehab?

- Discharge Patient to Prior Home/Community (if not already) and Arrange for Medical Follow-Up in Primary Care (including secondary prevention of stroke and atherosclerotic vascular disease)

## ***Objective***

- Ensure that the patient's continued medical and functional needs are addressed after discharge from rehabilitation services.



# Evidence for medical and functional follow up

- Follow-up with PCP: within 1 month of discharge
- Follow-up with rehab professional: 3-6 months after discharge



Secondary Prevention: **strong**



Exercise Program: **fair**



Services for Adaptive Equipment, Return to Work or Driving, Sexual Function: **poor**



# Anecdotal Importance



**Consider the services available in your community that work to increase independence and quality of life**

- Home evaluation
- Vocational training
- Leisure activities
- Inventories of region's resources
- Adult day programs
- COA, AAA, Sr. Ctrs.
- Support groups
- Peer mentoring
- Income support
- Case mgt for complex patient and family situations
- Assisted Living



# What makes sense in your community?

“Absolute maximum growth is probably incompatible with maximum quality.”

– Larry Ellison, Founder of Oracle