

Improving the Transitions of Care
An Evidence Based Medicine Approach
CHF, COPD and Stroke

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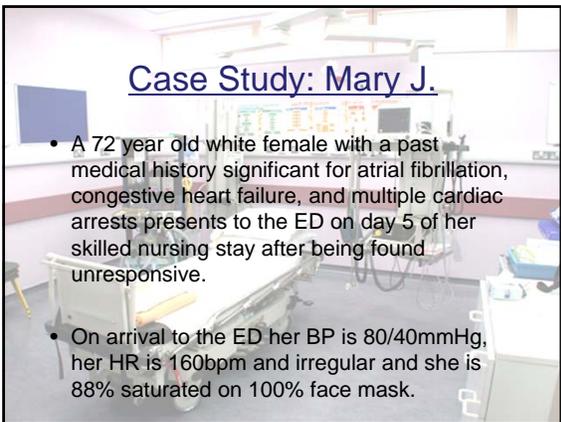


HCR ManorCare 

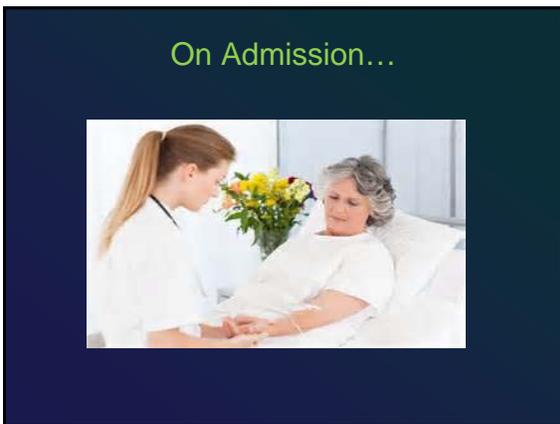
The slide has a dark blue background with white and yellow text. The title is in a large, bold, white font. The subtitle is in a smaller, white font. The speaker's name and title are in a white font. The HCR ManorCare logo is in the bottom right corner. A small version of the Focus 2015 logo is in the bottom left corner.

Case Study: Mary J.

- A 72 year old white female with a past medical history significant for atrial fibrillation, congestive heart failure, and multiple cardiac arrests presents to the ED on day 5 of her skilled nursing stay after being found unresponsive.
- On arrival to the ED her BP is 80/40mmHg, her HR is 160bpm and irregular and she is 88% saturated on 100% face mask.

The background image shows a hospital room with medical equipment, including a bed, a monitor, and a desk. The room is brightly lit and appears to be a modern medical facility.





Day 1 - Thursday

[Day 1 18:49 Skilled Nursing Note](#)

- Patient admitted from hospital via stretcher. Patient is 72 year old white female who is s/p exacerbation of CHF secondary to an MI. She is alert and oriented X3. She denies pain at this time. She denies SOB. No distress noted. Her BP is 140/74, HR 87. Oxygen at 2L via nasal cannula. Pulse ox 95%. 16FR foley draining light yellow urine. Lung sounds are clear. ABD round non-tender non-distended. Bowel sounds present x4 normal. Mild non-pitting edema noted to BLE which resolves when feet elevated in bed. Admission weight is 123lbs.



Day 2 - Friday

Day 2 03:37 Skilled Nursing Note

- Resident alert, oriented x3. Resting in bed. Admission orders reviewed with doctor. No new orders. Oxygen at 4 liters per n/c. Foley cath patent, urine clear, yellow. Resident took all meds well, fluids taken well. Denies pain, discomfort, has prn. Call bell within reach.

Day 2 15:19 General Progress Note

- VS 154/78, 88, 98, 0.92% on 4l/nc. Pt stated that her pain was managed throughout shift. All meds & tx tolerated.

Day 2 21:29 General Progress Note

- VS 140, 88, 98, 0.95%. Alert and oriented x3. Able to make needs known. Assist x1 with adfs. Foley patent draining clear yellow urine. Voices no c/o at this time.

Day 3 - Saturday

Day 3 15:54 General Progress Note

- Pt c/o of increased fatigue and SOB after therapy. Patient returned to bed. VS 148/73, 80, 98.4, 90% on 4l/nc. Physician notified. Order additional dose of Lasix 40mg x1 now and increased Lasix to 40mg p.o. BID.



Day 3 17:29 General Progress Note

- Pt's daughter in to visit and updated on pt's condition. Pt reports that she is feeling better after resting but she is not hungry and has refused her evening meal. Daughter asked when the doctor would be in to see her mother and was told that he normally rounds on Tuesdays. Daughter asked that the doctor call her.

Day 4 - Sunday

Day 4 07:53 Weekly Weight Note
Weekly weights noted at 135.2lbs. Will review with weight team.



Day 4 14:53 Skilled Nursing Note

- Patient ate 50% of her meals today and refused therapy. VS 110/82, 92, 98.4, 90%. She appears comfortable but says she feels like she is getting a cold. Resp even and unlabored, O2 per NC. No respiratory distress noted. Pt showered today. Daughter updated.

Day 5 - Monday

Day 5 00:07 Skilled Nursing Note

- Patient alert, oriented x3, sitting up in chair without complaint of pain/discomfort. Foley draining yellow urine.

Day 5 07:48 General Progress Note

- Foley cath d/c'd, tol. well. Color of urine in bag looked somewhat orange, clear. No c/o discomfort.

Day 5 13:57 Skilled Nursing Note

- Pt remained very lethargic throughout am. Pt stated she was very tired. Pt looked very pallor. Pt O2 stats were 80-85%, Pt breathing was labored, Lungs sound were congested with high pitched rhonchi upon expiration. Pt. expressed that she had chest tightness & congestion & that she was very thirsty. Glucose level was WNL. Patient became increasingly less responsive. MD was called with symptoms & overall update on Pt, Orders were given to send pt to ER. Family was notified.

DAY 5: 9:15pm

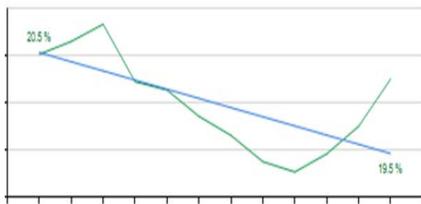
- A 72 year old white female with a past medical history significant for atrial fibrillation, congestive heart failure, and multiple cardiac arrests presents to the ED on day 3 of her skilled nursing stay after being found unresponsive.
- On arrival to the ED her BP is 80/40mmHg, her HR is 160bpm and irregular and she is 88% saturated on 100% face mask.

Preventable?



Studies on Rehospitalization

- Within 30 days of hospitalization 23.5% of all SNF Medicare beneficiaries are rehospitalized.
- 90% of rehospitalizations within 30 days appear to be unplanned, the result of clinical deterioration.
- MedPAC estimates that up to 76 percent of those re-hospitalizations may be preventable, representing a potential savings to Medicare of over \$12 billion in one year
- Only half of the patients rehospitalized within 30 days had a physician visit before readmission.
- Of the Medicare beneficiaries who are re-hospitalized within 30 days, 64% receive no post-acute care between discharge and readmission.
- 19% of Medicare discharges are followed by a "preventable" adverse event within 30 days—2/3 are medication related.



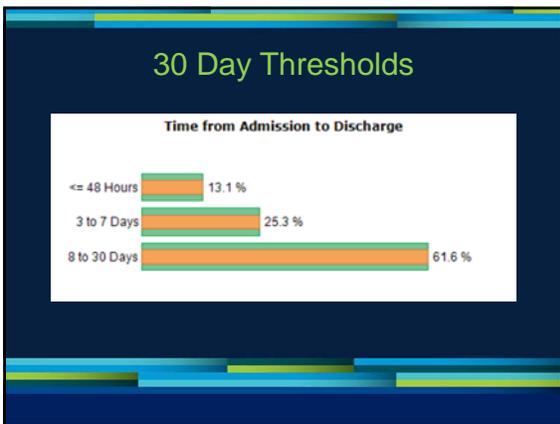
The NEW Quality Measure

Why Do Patients Get Stuck in the Revolving Door of HealthCare?



Rehospitalization Prevention Opportunities

- At 24-48 Hours
 - Transition of Care
- At Day 3-7
 - Initial Assessment
- At Day 8-30
 - Communication



Rehospitalization Prevention Initiatives

- At 24-48 Hours
 - Transition of Care
- At Day 3-7
 - Initial Assessment
- At Day 8-30
 - Communication

Transition of Care Initiatives
3-7 Days - Medical Practice

- Initial Visit Window
- Frequency of Visits
- Individualized Diagnosis Specific Treatment Protocols

Rehospitalization from PAC
Patient Diagnostic Profile - 2014

- **78 year old white female**
 - Primary Reason for Rehospitalization
 - Diagnosis:
 - Cardiac - 28%
 - Pulmonary - 24%
 - Neurologic - 17%
 - Fever - 12%
 - Gastrointestinal - 8%
 - Orthopedic - 8%
 - Other - 3%

Evidenced-Based
Diagnosis Specific Protocols

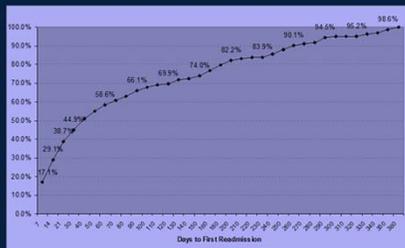
- Congestive Heart Failure
- Chronic Obstructive Pulmonary Disease
- Cerebrovascular Accidents

Heart Failure

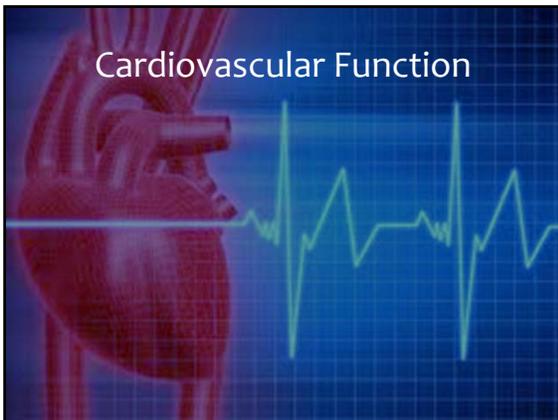
- Fastest growing clinical cardiac disease in the United States.
- Approximately 670,000 new cases of heart failure are diagnosed each year
- About 277,000 deaths are attributed to heart failure each year
- The most frequent cause of hospitalization in patients over 65 years

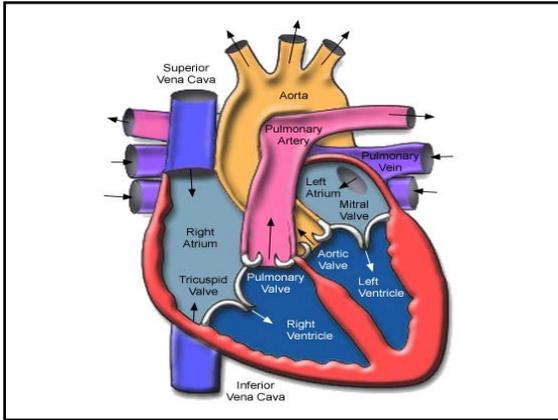
Risk of CHF Rehospitalization

It's Just a Matter of Time



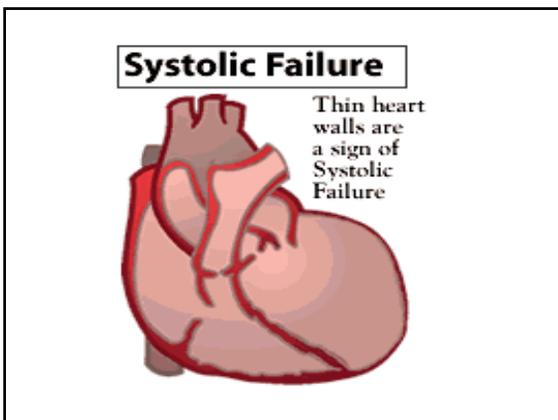
Cardiovascular Function





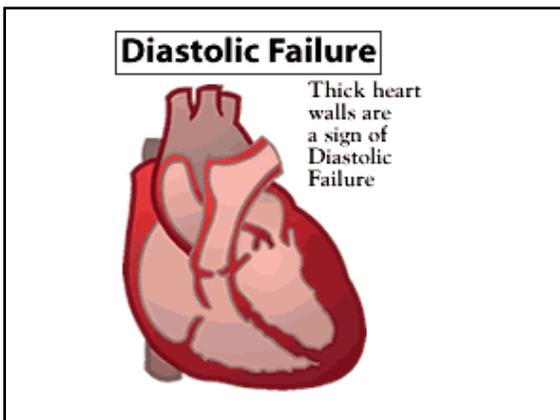
Anatomy of Ventricular Failure

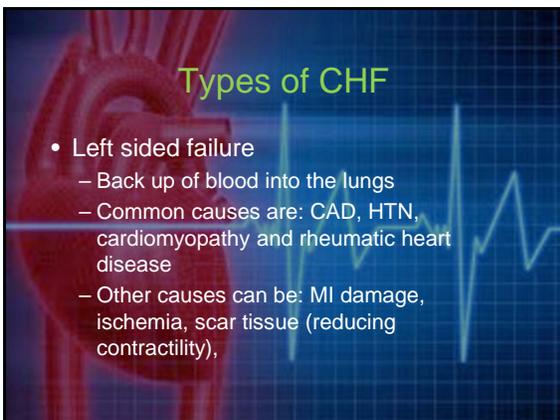
- **Systolic failure:** causes ventricle not to empty properly (most common cause of CHF)
 - Heart muscle has decreased ability to contract
 - Also caused by increased afterload (hypertension), or mechanical abnormalities (like valvular heart disease)
 - Characterized by low forward blood flow

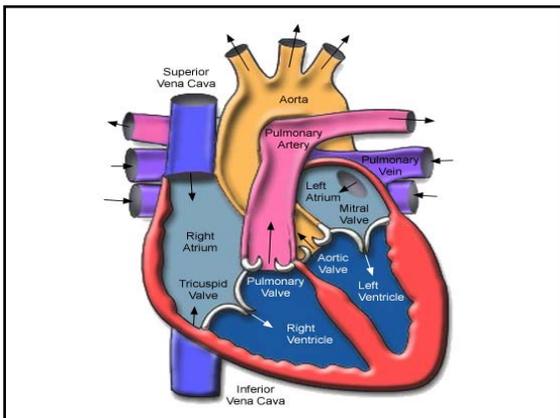


Anatomy of Ventricular Failure

- Diastolic failure: causes ventricle not to fill properly
 - Disorder of heart relaxation and ventricular filling
 - Usually the result of ventricular hypertrophy
 - Caused by chronic hypertension, aortic stenosis, or cardiomyopathy
 - Commonly seen in older adults

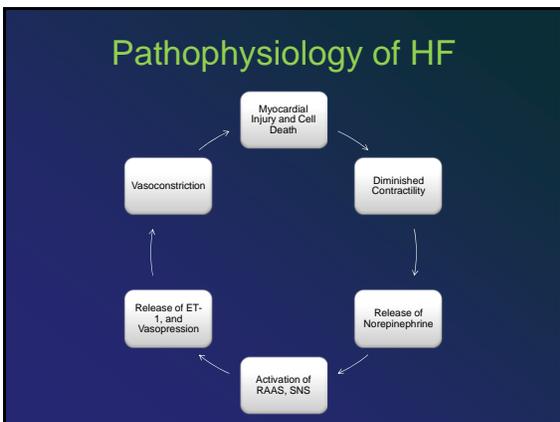






Types of CHF

- Right sided failure
 - Backup of blood into the venous system and right side of the heart
 - Primary cause is left sided failure
 - Also caused by Cor pulmonale (caused by COPD, and pulmonary emboli)
 - Also caused by MI damage, ischemia and scarring



Transitions of Care Initiatives
Heart Failure

24-48 Hours Checklist

- Low Salt Diet
- Daily Weights
- Baseline Vital Signs
 - Orthostatic Blood Pressure and Heart Rate
 - Oxygen Saturation
- Baseline Cardiac Labs
 - BNP
 - Glucose
 - K, BUN, CRT
- Cardiac Medication Review
 - Loop Diuretics
 - Digoxin
 - ACE-I
 - B-blocker
 - Spironolactone
 - Alternate Cardiac Medications

ACE-I in CHF

- Mainstay of CHF Therapy
 - Improves Survivability
 - Decreases Disease Progression
 - Decreases CHF Readmissions
- Weekly Titration to Maximize Benefit
 - ‘Start low and go slow’
 - Titrate Ace-I, wean diuretic
- Monitor Labs and Side Effects

CHF – ACE-I Dosing Schedule

Drug	Initial dosage (mg)	Targeted dosage	Maximal dosage	Peak BP effect
Captopril (Capoten)	6.25 to 12.5	50 mg three times daily	100 mg three times daily	1 to 2 hours
Enalapril (Vasotec)	2.5 to 5	10 mg twice daily	20 mg twice daily	4 to 6 hours
Fosinopril sodium (Monopril)	5 to 10	20 mg daily	40 mg daily	2 to 6 hours
Lisinopril (Zestril)	2.5 to 5	20 mg twice daily	40 mg twice daily	2 to 6 hours
Quinapril (Accupril)	5 to 10	20 mg twice daily	40 mg twice daily	2 to 4 hours
Ramipril (Altace)	1.25 to 2.5	5 mg twice daily	10 mg twice daily	4 to 6 hours

CHF – Cardiac Medication Review Evidence Based Approach

- Loop Diuretics (NYHA II, III, IV)
- Digoxin (Variable evidence)
- ACE-I (Strong evidence)
- ARBs (Limited evidence)
- B-Blockers (NYHA II, III)
- Spironolactone (RALES)
- NSAIDS (negative effect)
- Calcium Channel Blockers (PRASES)

Transitions of Care Initiatives
Heart Failure

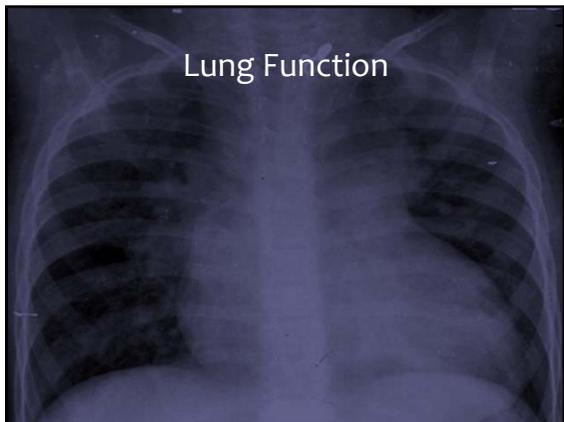
Ongoing Assessment

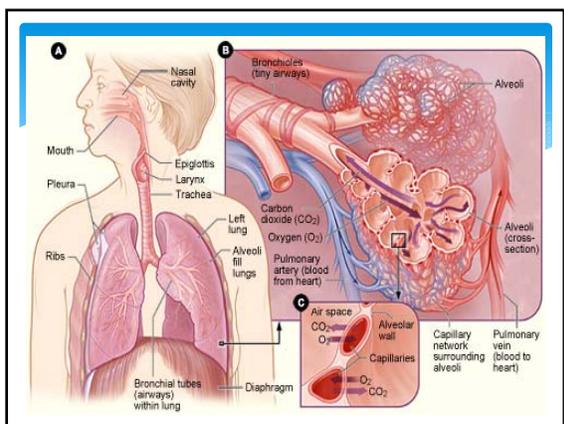
- History
 - NYHA Functional Classification
 - Angina
 - Cough
- Physical Examination
 - Low SBP
 - Edema
- Database
 - Anemia
 - CRT
 - Echocardiogram

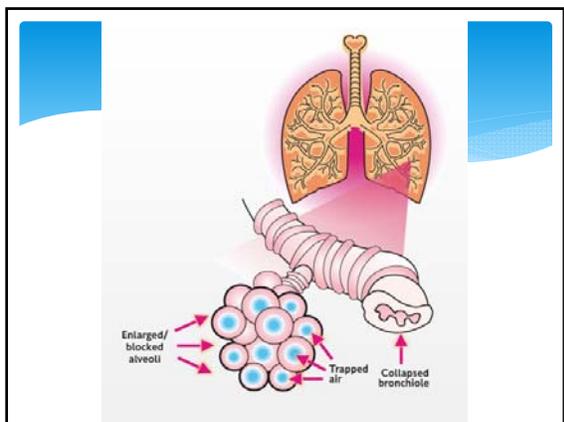
New York Heart Association (NYHA) Classification of Heart Failure

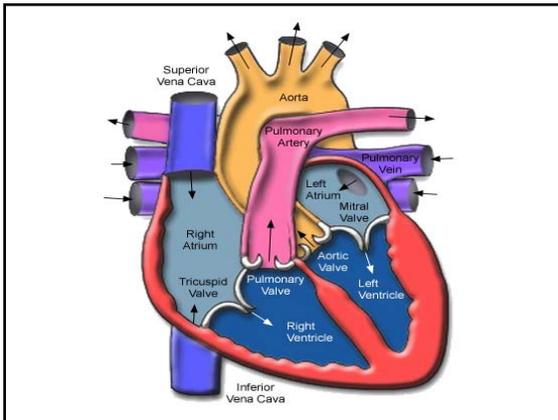
Class	Patient Symptoms
Class I (Mild)	No limitation of physical activity. Ordinary physical activity does not cause undue fatigue, rapid/irregular heartbeat (palpitation) or shortness of breath (dyspnea).
Class II (Mild)	Slight limitation of physical activity. Comfortable at rest, but ordinary physical activity results in fatigue, rapid/irregular heartbeat (palpitation) or shortness of breath (dyspnea).
Class III (Moderate)	Marked limitation of physical activity. Comfortable at rest, but less than ordinary physical activity results in fatigue, rapid/irregular heartbeat (palpitation) or shortness of breath (dyspnea).
Class IV (Severe)	Unable to carry on physical activity without discomfort. Symptoms of fatigue, rapid/irregular heartbeat (palpitation) or shortness of breath (dyspnea) are present at rest. If any physical activity is undertaken, discomfort increases.

Transitions of Care Initiatives
Heart Failure









Types of CHF

- Right sided failure
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Transition of Care Initiatives
COPD

24-48 Hour Checklist

- 2G Na Diet
- Vital Sign Parameters
- Database
 - ABG
 - CBC
 - Chem 7
- COPD Medication Review
 - Steroid Therapy
 - Long Acting B2 Adrenergic Agonist
 - Short Acting B2 Adrenergic Agonist
 - Long Acting Anti-cholinergic
 - Short Acting Anticholinergic
 - Phosphodiesterase type 4 Inhibitor
 - Leukotriene Receptor Antagonist
 - Antibiotics

COPD Medication Review Evidence Based Approach

- Corticosteroid (Strong Evidence)
- a long acting B2 adrenergic agonist (Salmeterol)
- a short acting B2 agonist (Albuterol)
- A long acting anticholinergic – (Tiotropium -Spiriva) decrease airway tone and increase airflow
- A short acting anticholinergic – (Ipratropium-Atrovent)
- Phosphodiesterase type 4 inhibitor (PDE4) an immune cell mediator antiinflammatory (Variable Evidence)(Roflumilast -Daliresp)
- Antibiotics (Strong evidence)

Transition of Care Initiatives COPD

Ongoing Assessment

- History
 - Risk factors
 - Associated morbidities
- Physical Examination
 - Pneumonia Severity Index
- Database
 - Spirometry
 - Sputum Culture
- COPD Medication Review
 - DVT Prophylaxis

Pneumonia Severity Index

Step 1 without score

Age > 50 years yes → +10

Co-Morbidity

- active neoplastic disease ≤ 1 y → +10
- heart failure (with systolic or diastolic ventricular dysfunction) → +10
- stroke / TIA → +10
- renal disease/abnormal creatinine → +10
- chronic liver disease → +20

Clinical

- disorientation → +20
- heart rate > 125/min → +10
- respiratory rate > 30/min → +20
- RR₁₅ < 90 mmHg → +20
- temp < 35° / > 40° → +15

Class I: Mortality 0.1%

Step 2 with scoring

Age m (in years) -----

r (in years - 10) -----

Nursing Home ----- +10

Blood Tests & Radiology

- art. pH < 7.35 +30
- P-urea > 11 mmol/l +20
- P-sodium < 130 mmol/l +20
- P-glucose > 14 mmol/l +10
- Hematokrit < 30% +10
- PaO2 < 60 mmHg +10
- effusion +10

Total Score

< 70	Class II	Mortality 0.6%
71-90	Class III	Mortality 0.9%
91-130	Class IV	Mortality 9.3%
> 130	Class V	Mortality 27.0%

Class III: Consider Outpatient RX

Transition of Care Initiatives
Pneumonia

Pathogenesis

Thromboembolic

- Embolic
- Thrombotic
- Lacunar

Hemorrhagic

- Intracerebral
- Subarachnoid

Area deprived of blood

Obstruction blocks blood flow to part of the brain

Area of bleeding

Weakened vessel wall ruptures, causing bleeding in the brain

Stroke Syndromes

Areas of the brain (lateral view)

Frontal lobe
Planning, reasoning, problem solving, recognizing and regulating emotion, social skills.

Temporal lobe
Understanding language, processing auditory information, organizing information, memory, learning.

Brain stem
Regulates breathing, body temperature, heart activity etc.

Parietal lobe
Integrating sensations and body position, recognizing objects, spatial judgments, understanding time.

Occipital lobe
Integrating and processing visual information (colour, shape, distance).

Cerebellum
Controls balance and muscle coordination.

Motor Impairments

- Motor Weakness - 90%
- Dysarthria - 50%
- R Hemiparesis - 45%
 - L hemiparesis - 35%
 - B Hemiparesis - 10%
- Sensory Deficits - 50%
- Cognitive - 35%
- Aphasia - 35%
- Depression - 30%
- Bladder incontinence - 30%
- Dysphagia - 30%
- Visuoperceptual deficits - 30%
- Hemianopsia - 25%
- Ataxia - 20%

Medical Post Stroke Complications

- ❖ Malnutrition
- ❖ Aspiration
- ❖ DVT
- ❖ Anxiety
- ❖ Depression
- ❖ Pneumonia
- ❖ Cardiac complications
- ❖ Sexual dysfunction
- ❖ Seizures
- ❖ Pressure ulcers
- ❖ Bowel and bladder dysfunction
- ❖ Falls

Transition of Care Initiatives Stroke

24-48 Hour Checklist

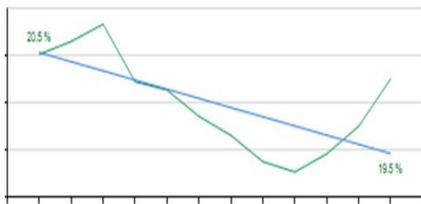
- DASH Diet
- Vital Sign Parameters
- Database
 - CBC
 - Blood Glucose
 - Bladder Parameters
 - Venous Doppler
- Stroke Medication Review
 - Oxygen
 - B-Complex Vitamins
 - Antiaggregants - ASA
 - Anticoagulation
 - Anti-hypertensives
 - Cholesterol and Lipid lowering medications

Stroke Medication Review Evidence Based Approach

- B-Complex Vitamins (Limited evidence)
- Platelet Antiaggregants (Strong evidence)
 - ASA
 - Ticlopidine
 - Clopidogrel
 - Dyperidamole (ESPS-2 and ESPRIT)
- Anticoagulants (Variable evidence)
- HMG-CoA Reductase Inhibitors (Strong evidence)
- Antihypertensives (Strong evidence)
 - ACE-I

Quality Care Initiatives

- Clinical Skills Inventory.
- Transition of Care Nurse-to-Nurse Report.
- SBAR support.
- Individualized Diagnosis Specific Treatment Checklist and Protocols.
- Alert Review.
- Care Path Utilization.



The NEW Quality Measure
