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From Bedside to Boardroom and Back: In Hospital Stroke Alert Process Improvement

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PeaceHealth Sacred Heart Medical Center at RiverBend

- Licensed Beds: 338
- Level II Trauma Center
- Tertiary Care Center

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Sacred Heart at RiverBend Volumes

	FY 2011	FY 2012	FY 2013
Annual Admissions	26,880	26,177	25,701
Annual ER Visits	51,717	53,215	55,287
Annual Surgery Volumes	15,996	15,330	15,015

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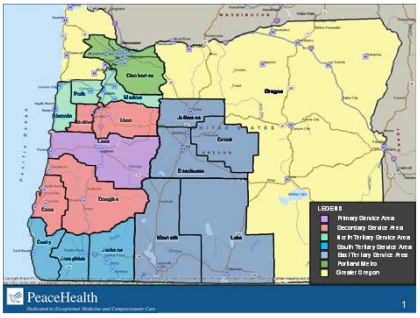
Counties We Serve



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Stroke Program

- Primary Stroke Center treating around 600 strokes per year
- Endovascular stroke services
- Received Get with the Guidelines Gold Plus award in 2012

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Sacred Heart at RiverBend Stroke Volumes

	FY 2011	FY 2012	FY 2013
Ischemic Stroke	421	453	395
Hemorrhagic Stroke	83	103	70
Subarachnoid Hemorrhage	42	34	39
Transient Ischemic Attack	64	48	56
Unruptured Aneurysm	16	24	24

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In-Hospital Stroke Nationwide

According to the National Stroke Association:

- 4-17% of all strokes occur in hospitalized patients
- Mortality is 2-3 times higher for in-hospital stroke
- Delay in treatment is high with only 15% of in-hospital strokes evaluated by a physician in the first 3 hours

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In-Hospital Stroke - RiverBend

- Anecdotal reports of delays in stroke care
- No easy way to measure in-hospital stroke occurrences
- No process in place to provide consistent, evidence-based care

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National Stroke Association

- Starting point for process improvement work was the National Stroke Association In Hospital Stroke Resource Center: http://www.stroke.org/site/PageServer?pagename=inhospital_resources

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Process Team

Consisted of:

- Stroke program director
- Manager of neurology
- Educators of neurology, cardiac floor, & ICU
- Stroke nurse
- ICU charge nurses (RRT)
- Cardiac staff nurse
- House Supervisor

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Process Design Meeting – Morning

- Team reviewed each step recommended by NSA for a stroke alert
- Modified recommendations to meet unique needs of the hospital
- Drafted an order set, assessment & communication tool, and assigned roles
- Recommended overhead & text page

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Process Design Meeting – Afternoon

- Drafted orders
- Conducted a high fidelity simulation to test the new process
- Identified areas for improvement, especially in communication

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Post-Process Design Meeting Planning

- Met individually with the manager of every department involved in the proposed response team
- Designed stroke packets, including
  - Stroke alert orders
  - Stroke admission orders
  - Stroke alert policy

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Stroke Alert Initiation

- Based on RN assessment using FAST if:
  - Patient is not having a seizure
  - Patient has CBG between 60-400
  - Last known normal is within 8 hours
  - Narcan does not improve symptoms (if patient is on opioids)

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Stroke Alert Initiation

If ANY item on the FAST assessment is abnormal, call a Stroke Alert and implement the Stroke Alert Standing Orders immediately. Record the following:

Date: _____ Time Stroke Alert called: _____

VS: T ___ BP ___ HR ___ RR ___ SpO2 ___

Patient weight: _____ (taken within last 24 hrs)

Neurologist on-call: _____ # _____

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MD Notification

If requested by attending or if unable to reach attending physician within 15 min, Primary RN to call on-call Neurologist with the following:

S: "I am calling because Dr. _____ requested a consultation about my patient who is having an acute neurologic change."

B : Pt name: _____ Age ___ Rm# _____

Attending MD _____ Phone _____

Primary/Admit diagnosis _____

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MD Notification

A : VS, CBG, FAST findings

Anticoagulation (including meds and most recent PT/INR & PTT) _____ Creatinine _____

NIHSS _____ (RRT nurse to complete. Do not delay call to neurologist if NIHSS is delayed.)

R: "I have implemented the stroke alert standing orders. The patient is going to CT in RM ___ with RN _____ # _____ and will return here to room _____until a treatment decision is made"

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Stroke Alert Materials

- Stroke Alert Orders
  - Nurse initiated with RN request for neurologist consult
  - Standing orders approved through MEC & physician department meetings
  - Cardiac monitor, pulse ox, HOB flat, NPO, CT notification, 20 G IV
  - Critical labs and CT/CTA/CTP

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Stroke Alert Response Team

- Primary Nurse
  - Notifies charge nurse & locates stroke packet
  - Follows standing orders in stroke packet
  - Calls security to initiate the stroke alert
  - Notifies the attending physician, and neurologist if requested

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Stroke Alert Response Team

- Ward Clerk
  - Enters the standing orders using an electronic order set
  - Down time lab orders are included in the stroke alert packet

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Stroke Alert Response Team

- Charge Nurse
  - Assists with coverage for primary RN's other patients
  - Assists with stroke alert as needed
- Security
  - Initiates overhead and text pages

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Stroke Alert Response Team

- ICU Charge RN
  - Brings RRT cart
  - Attaches cardiac monitor to the patient
  - Completes NIHSS
  - Assists with transport to CT if time allows
  - Assists with ICU bed if needed

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Stroke Alert Response Team

- Respiratory therapy
  - Assesses the patient's airway and breathing
  - Assists with airway and breathing support if needed
  - If support is not needed, RT may leave

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Stroke Alert Response Team

- Phlebotomy
  - Draws critical labs
- Critical care house float
  - Assists with IV access if needed
  - Transports patient to CT if time allows

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Stroke Alert Response Team

- House Supervisor
  - Obtains number for on-call neurologist
  - Ensures an RN is available for transport to CT
  - Secures an ICU bed if tPA is given
  - Helps initiate cath lab if intervention is needed
  - Secures a neuro bed if no tPA or intervention
  - Holds original bed until treatment decision made

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Stroke Alert Response Team

- Spiritual care
  - Responds when chaplains are in the hospital
  - Provides support and advocacy to patient and family
- Neurohospitalist
  - Responds when in the hospital
  - Assesses patient and makes treatment decisions

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Others Activated in Stroke Alert

- Pharmacy
  - Acquires tPA when stroke alert is called
  - If tPA is ordered, mixes and delivers it to ICU
- CT
  - Clears the CT scanner when stroke alert is called
  - If transport is available, sends someone to patient

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Barriers Immediately Identified

- RN-accompanied transport to CT
- Availability of tPA
- Patient placement after CT
- Neurologist involvement
- Difficulty creating easy to use paperwork
- Anxiety about nursing driven orders

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Training

- Educator & neurohospitalist met with nursing staff
- Trainings provided for all 3 shifts covering:
  - Purpose
  - Orders
  - Roles & responsibilities
  - Potential obstacles
  - Need for feedback – PDCA

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Implementation

- Decided to pilot on the cardiac floor for 3 months
- Went live in March 2013
- Nine in-hospital strokes have been called since go-live

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Results

	Discovery to SA Called	SA to Team Arrive	SA to MD Arrive	SA to CT start	SA to CT First Read	SA to IV tPA
1	0:10	0:04		0:34	0:39	1:10
2	0:02	0:20	0:10	0:36	0:51	
3	0:10			0:25	0:35	
4				0:19	0:34	
5	0:20			0:27	0:55	
6	0:27		0:18	0:26	0:44	
7	0:00			1:02	1:12	
8	0:00		0:35	0:33	0:55	
9	0:25			0:20	0:24	
Mean	**0:12**	**0:12**	**0:21**	**0:31**	**0:45**	**1:10**

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What Went Well

- Nursing awareness and interest increased
- Team notification
- Overhead page
- The right people arrived quickly
- Transport to imaging was smooth
- Positive response from nurses & physicians
- Committed physician champion

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Opportunities

- Order sheet includes too much information
- Form does not easily allow data collection
- Ancillary staff & other nursing units were not aware of the process
  - "Stroke alert, not smoke alert"
- Post-event debriefings were sporadic
- Roll out has been slow

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Next Steps

- Revise order form to increase user-friendliness and improve data collection
- Implement debriefs
- Pilot revisions on cardiac floor
- Begin hospital-wide implementation planning, including ancillary services
- Re-educate as needed to keep momentum

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Questions?