

EMR Tools as Agents of Change

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Objectives

- Outline innovative geriatrics EMR tools which facilitate clinical care and training
- Discuss strategies for development, implementation and evaluation
- Share “pitfalls” and “lessons learned”

Workshop Structure

- Introduction & Presentations: 10 minutes
 - CPOE:
 - Geriatric Order Set
 - Hip Fracture Admission
 - Template
 - Advanced Care Planning
- Small Group Discussions: 50 minutes
 - Focus: CPOE or Template
 - Please join the appropriate table for your interest

Rapid Cycle Quality Improvement: Plan – Do – Study - Act

- Identify a problem in delivery of care
- Conduct small local test cycles
- Learn from taking action
- Encourage systemic improvement
- Gauge effectiveness of interventions

DM Berwick, 1998

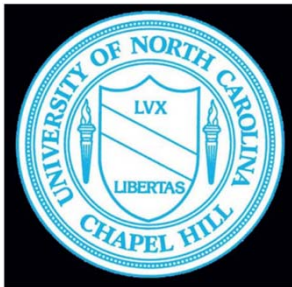
Computerized Physician Order Entry (CPOE)

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UNC Hospitalists: The Stakeholders

- 20 Internal Medicine faculty
- 3 midlevel providers
- 5 active inpatient services
 - 3 hospitalist services
 - 2 teaching services
 - 50 Internal Medicine Interns and Residents

Order-sets Are Paired With Templates

- Geriatric Order-set:
 - Geriatric Consult note
 - Geriatric Admission note
- Hip Fracture Admission Order-set
- Hip Fracture Post-Op Day 1 Order-set
 - Hip Fracture Admission note
- All include:
 - Baseline functional capacity
 - Mini Cog score, Healthcare proxy, Code Status
 - DVT prophylaxis, bowel regimen
 - Delirium prevention

Geriatric Order-set

ACTIVITY	
	<input checked="" type="checkbox"/> <input type="checkbox"/> OOB to chair with meals
	<input checked="" type="checkbox"/> <input type="checkbox"/> PASSIVE EXERCISE to all extremities with AM and PM care
	<input type="checkbox"/> AMBULATE WITH ASSISTANCE Daily
NURSING	
	<input checked="" type="checkbox"/> <input type="checkbox"/> Assess Orientation to Person, Time and Place QAM and PRN- Reorient patient when necessary
	<input checked="" type="checkbox"/> <input type="checkbox"/> Note: Open blinds every AM
	<input checked="" type="checkbox"/> <input type="checkbox"/> Note: Minimize disturbances at night, Turn off television when pt asleep or when not in use
	<input checked="" type="checkbox"/> <input type="checkbox"/> To Bedside: Glasses, hearing aid, and pt's own shoes. Make available to patients when possible and encourage use
	<input checked="" type="checkbox"/> <input type="checkbox"/> Encourage po fluids, keep fluids within reach
GENITOURINARY	
	<input type="checkbox"/> Remove: indwelling urinary catheter – RN/HUC D/c order in CPOE when completed.
	<input type="checkbox"/> Bladder Scan post void residual after first void or if no void in 6 hours
	<input type="checkbox"/> Call HO for PVR > 200 mL or if no void in 6 hours
MD NOTE:	
<i>For acute medicine floors, order:</i>	
	<input type="checkbox"/> Remove indwelling catheter per protocol. Discontinue catheter per policy NURS 0143 (For medicine acute floors only)

Hip Fracture Order-set

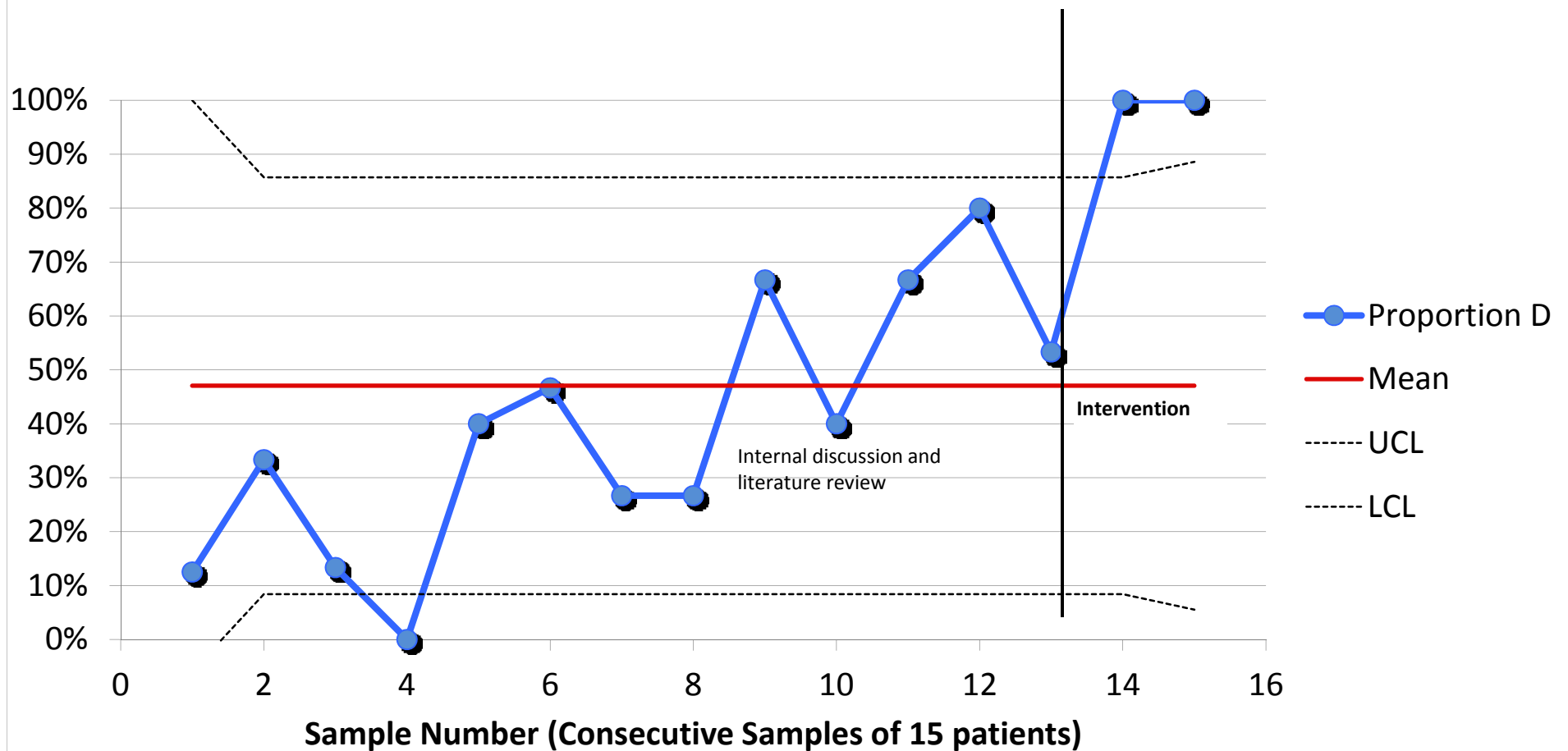
NURSING	
14.	<input checked="" type="checkbox"/> <input type="checkbox"/> WEIGH PATIENT QAM AND ON ADMISSION
15.	<input checked="" type="checkbox"/> <input type="checkbox"/> Strict I&O q 4 hrs
16.	<input checked="" type="checkbox"/> <input type="checkbox"/> INDWELLING URINARY CATHETER – Perioperative use < 48 hrs
17.	<input checked="" type="checkbox"/> <input type="checkbox"/> INCENTIVE SPIROMETRY Q1HR x 10 while awake
18.	<input type="checkbox"/> TEACH PATIENT: Smoking/Tobacco Use Cessation if Smoked in last 12 months
19.	<input type="checkbox"/> PROVIDE EDUCATIONAL MATERIALS: _____
20.	<input checked="" type="checkbox"/> <input type="checkbox"/> SCD PUMP - INT VEN PUMP
21.	<input checked="" type="checkbox"/> <input type="checkbox"/> SCD – STOCKINGS
22.	<input checked="" type="checkbox"/> <input type="checkbox"/> SCD'S ON EXCEPT FOR THERAPY
23.	<input checked="" type="checkbox"/> <input type="checkbox"/> TRAPEZE
24.	<input checked="" type="checkbox"/> <input type="checkbox"/> Asses Orientation to Person, Time and Place QAM and PRN- Reorient patient when necessary
25.	<input checked="" type="checkbox"/> <input type="checkbox"/> Note: Open blinds every AM
26.	<input checked="" type="checkbox"/> <input type="checkbox"/> Note: Minimize disturbances at night, Turn off television when pt asleep or when not in use
27.	<input checked="" type="checkbox"/> <input type="checkbox"/> To Bedside: Glasses, hearing aide, and pt own shoes. Make available to patients when possible and encourage use
28.	<input checked="" type="checkbox"/> <input type="checkbox"/> Encourage po fluids when appropriate, keep fluids within reach

MEDICATIONS - ROUTINE	
37.	<input type="checkbox"/> ASPIRIN CHEW 81 mg PO Daily
38.	<input type="checkbox"/> ASPIRIN EC 325 mg PO Once STAT
39.	<input type="checkbox"/> ASPIRIN EC 325 mg PO Daily
40.	<input type="checkbox"/> METOPROLOL TARTRATE 12.5 mg PO Q6hrs hold for SBP < 90 and HR<60
41.	<input checked="" type="checkbox"/> <input type="checkbox"/> CHOLECALCIFEROL 1000 UNT PO Daily
42.	<input checked="" type="checkbox"/> <input type="checkbox"/> DOCUSATE 100 mg PO Twice Daily – hold for loose stools
43.	<input checked="" type="checkbox"/> <input type="checkbox"/> POLYETHYLENE GLYCOL (3350) 17 g PO Daily hold for diarrhea
MD NOTE:	
<i>Reminder – if chemical VTE prophylaxis not ordered, MD must document reason in progress note.</i>	
44.	<input type="checkbox"/> HEPARIN 5000 UNT SC Q8hrs –
45.	<input type="checkbox"/> ENOXAPARIN 40 mg SC Daily
MEDICATIONS – PRN	
46.	<input checked="" type="checkbox"/> <input type="checkbox"/> Acetaminophen 650 mg PO q 4hrs PRN Temp > 38.5 PRN Reason: Temp > 38.5
47.	<input checked="" type="checkbox"/> <input type="checkbox"/> Acetaminophen 650 mg PO q 4hrs PRN mild pain
48.	<input checked="" type="checkbox"/> <input type="checkbox"/> ALUM/MAG HYDROX/SIMETHICON LIQ 30 mL PO Twice Daily PRN Constipation
49.	<input checked="" type="checkbox"/> <input type="checkbox"/> ALUM/MAG HYDROX/SIMETHICON LIQ 15 mL PO Q2hrs PRN Indigestion
50.	<input type="checkbox"/> Nitroglycerin 0.4 mg sublingual Q 5 Min X 3 PRN Chest Pain. Notify MD if given.
51.	<input type="checkbox"/> Morphine Sulfate 2 mg IV Q 4 hours PRN for severe pain score
52.	<input type="checkbox"/> OXYCODONE IR 5 mg PO Q4hrs PRN Moderate Pain
53.	<input type="checkbox"/> Ondansetron ODT 4 mg po q 8 hrs PRN nausea/vomiting
54.	<input type="checkbox"/> clonIDINE 0.1 mg PO Q8hrs PRN SBP > 190
55.	<input type="checkbox"/> <u>hydrALAZINE</u> 10 mg IV Q6hrs PRN SBP > 190
PCA	
56.	<input type="checkbox"/> PCA Mini-Set Patient Controlled Analgesia(PCA)

71.	<input type="checkbox"/> PHOSPHORUS, SERUM 0400 RND
COAGS	
72.	<input type="checkbox"/> PT (PROTHROMBIN TIME) INCL.INR 0400 RND
73.	<input type="checkbox"/> PTT/ACTIVATED PTT 0400 RND
OTHER LABS	
74.	<input type="checkbox"/> D DIMER 0400 RND
75.	<input type="checkbox"/> ALBUMIN, SERUM 0400 RND
76.	<input type="checkbox"/> PROTEIN, TOTAL 0400 RND
77.	<input checked="" type="checkbox"/> <input type="checkbox"/> VITAMIN D (25OH) 0400 RND
78.	<input type="checkbox"/> LIPID PANEL, FASTING 0400 RND
79.	<input type="checkbox"/> HGB A1C 0400 RND
SERIAL CARDIAC ENZYMES LAB <i>Select for LAB Collect</i>	
80.	<input type="checkbox"/> CK <u>Creatine Kinase</u> 0400 RND
81.	<input type="checkbox"/> CK <u>Creatine Kinase</u> 1300RND
82.	<input type="checkbox"/> CK <u>Creatine Kinase</u> 2200 RND
83.	<input type="checkbox"/> CK MB PROFILE 0400 RND
84.	<input type="checkbox"/> CK MB PROFILE 1300 RND
85.	<input type="checkbox"/> CK MB PROFILE 2200 RND
86.	<input type="checkbox"/> TROPONIN 0400 RND
87.	<input type="checkbox"/> TROPONIN 1300 RND
88.	<input type="checkbox"/> TROPONIN 2200 RND
URINE COLLECTION	
89.	<input type="checkbox"/> TOXICOLOGY SCREEN URINE -QUIAI

Measuring Success

P-Chart of Proportion of Patients Having Vitamin D Checked



Getting Hip to Vitamin D: A Hospitalist Project for Improving Assessment of and Treatment for Vitamin D Deficiency in Elderly Patients Undergoing Hip Fracture Surgery, John Stephens, MD; Chris Williams, MD; Eric Edwards, MD; Paul Oszman, MD; Stephanie Flecksteiner, MD; E. Allen Liles, MD; Jonathan Kirsch, MD

EMR Template: Advance Care Planning (ACP) Discussion Progress Note

Elizabeth Clark, MD, FACP

Division of Geriatrics

Montefiore Medical Center

Albert Einstein College of Medicine



VA QI Project:

Advance Care Planning (ACP) in EMR

- Objective: Implement EMR ACP documentation
- Setting: 2 urban VA Medical Centers
- Methods
 - Development of user-friendly EMR tool
 - Multi-modal educational programs
- Assessment
 - VAMC 1 & 2: Total number of ACP notes written
 - VAMC 2: 200 ACP notes reviewed for
 - Effect of ACP on rates of Advance Directive (AD) completion
 - End-of-Life (EOL) care preference documentation for patients w/o capacity
 - Quality of ACP notes before and after training
 - Evidence of ACP discussion as ongoing process

Vista CPRS in use by: Clark, Elizabeth M (vista.bronx.med.va.gov)

File Edit View Tools Help

TEST_SYSTEM JOSEPH Visit Not Selected GERIATRICS PRIMARY CARE /

000-00-5841 Jan 01,1965 (45) Provider: CLARK,ELIZABETH M

Flag VistaWeb Remote Data Postings WAD

Active Problems

- Personal History Of Colonic Polyps
- Encounter For Therapeutic Drug Mon
- Observation For Unspecified Suspec
- Posttraumatic Stress Dis
- Tobacco Use Disorder
- Encounter For Palliative Care (ICD-9-Heart Failure
- Cataract, Nuclear Sclerosis
- Legally Blind (ICD-9-CM 369.4)
- Scotoma Involving Central Area (ICD-9-Generalized Visual Field Contraction
- Homonymous Bilateral Field Defects
- Better Eye: Moderate Vision Impairme
- Better Eye: Moderate Vision Impairme
- Better Eye: Moderate Vision Impairme
- Better Eye: Severe Vision Impairment
- Impotence Of Organic Origin (ICD-9-

Allergies / Adverse Reactions

- Penicillin
- Terazosin
- Taxol 300mg/50ml Inj
- Strawberries
- Amoxicillin/Clavulanate
- Warfarin

Patient Record Flags

- CONTACT PRECAUTIONS
- RESEARCH PARTICIPANT

Postings

Allergies

Psych Alert	Oct 26,2009	
Bronx Rhio-Clinical Info System		Aug 29,2008
Bronx Rhio-Clinical Info System		Aug 29,2008
Bronx Rhio-Clinical Info System		Jul 03,2008
Bronx Rhio-Clinical Info System		May 22,2008
Psych Alert	May 20,2008	
Advance Directive	Mar 16,2010	
Advance Directive Discussion		Mar 16,2010
Advance Directive Executed With Scanned Document		Nov 06,2009

Active Medications

Aspirin 325mg Ec Tab	Active
Gabapentin 300mg Cap	Hold
Warfarin (coumadin) Na 5mg Tab	Active
Non-VA Methadone 5mg Tablet	Active

Clinical Reminders

Vesting status	Due Date
No Hg&1c in past year. Test today	DUE NOW
DM Lipid Profile	DUE NOW
Pain Evaluation	DUE NOW
Diabetic/At Risk: Foot Exam	Apr 18,09
Tobacco Counseling	DUE NOW
Hepatitis C Screen	DUE NOW
Patient Education Documentation	Oct 24,09
Learning Assessment	Jan 07,10

th

Advance Directive Discussion Note (ACP Note)

Recent Lab Results

No Orders Found.

Vitals

T	98.7 F	Sep 30,2008 10:25	(37.1 C)
P	80	Sep 30,2008 10:25	
R	20	Sep 30,2008 10:25	
BP	130/70	Sep 30,2008 10:25	
HT	72 in	Sep 30,2008 10:25	(182.9 cm)
WT	210 lb	Sep 30,2008 10:25	(95.3 kg)
PN	4	Sep 30,2008 10:25	

Appointments/Visits/Admissions

Mar 16,2010 16:17 Geri Assessment Bedside Visits	Action Required
--	-----------------

Cover Sheet | Problems | Meds | Orders | Notes | Consults | Surgery | D/C Summ | Labs | Reports

Start | Microsoft Office... | Microsoft Excel | 4:27 PM

- New Note in Progress
- All signed notes
- Apr 21,11 ADVANCE DIRECTIVE DISCUSSION, EMERGENCY ROOM
- Apr 21,11 NURSING TRANSFER NOTE, EYE-DIABET
- Apr 19,11 NURSE FOLEY CATHETER INSERTION NC
- Apr 17,11 EYE DIABETIC RETINAL IMAGE READER C
- Apr 07,11 IMED CONSENT, ** No Location **, EDWAR
- Apr 05,11 NURSE FOLEY CATHETER INSERTION NC
- Mar 30,11 NURSING TRANSFER NOTE, EMERGENC
- Mar 25,11 ADVANCE DIRECTIVE DISCUSSION, 00 TE
- Mar 09,11 HEME/ONC OUTPATIENT VISIT, 00 TEST
- Feb 24,11 PTSD-INDIVIDUAL, 00 TEST 3, LYNN REP.
- Feb 24,11 ADVANCE DIRECTIVE DISCUSSION, GERI
- Jan 20,11 TELEPHONE CONTACT, TELEPHONE PSY
- Jan 04,11 PHARMACIST PHARMACOTHERAPY NOTI
- Dec 13,10 ADVANCE DIRECTIVE DISCUSSION, ZZ10
- Nov 28,10 PHARMACIST NOTE, EYE-GENERAL OPT
- Oct 27,10 COUMADIN INITIAL CONSULTS, PSYCHIA
- Oct 26,10 IMMUNIZATION/SKIN TEST NOTE, ZZ101
- Oct 12,10 EYE NURSE ANGIOGRAM NOTE, EYE-VIS
- Sep 01,10 PSYCH CONSULTATION AND LIAISON CO
- Aug 27,10 PHARMACIST PHARMACOTHERAPY NOT
- Aug 25,10 NUTRITION NOTE, MH SRS NUTRITION C
- Aug 11,10 HIV TESTING NOTE, 00 TEST-X, JULIE E.
- Aug 10,10 HIV TESTING NOTE, ID CONSULT, JULIE
- Aug 05,10 CARE COORDINATION HOME TELEHEAL
- Aug 05,10 CARE COORDINATION HOME TELEHEAL
- Aug 05,10 CCHT HOME TELEHEALTH EVALUATION
- Aug 05,10 CCHT HOME TELEHEALTH EDUCATION N
- Jul 12,10 CCHT HOME TELEHEALTH EDUCATION NI
- Jul 01,10 GERI PSYCH W/MEDS, 00 TEST-X, JUDITH
- Jun 09,10 PHARMACIST PHARMACOTHERAPY NOTI
- May 05,10 NURSING TRANSFER NOTE, 00 TEST-X,
- Mar 24,10 PHARMACIST PHARMACOTHERAPY NOT
- Mar 23,10 HBPC INTERDISCIPLINARY TEAM MEETIN
- Mar 18,10 EYE DIABETIC RETINAL IMAGE READER I
- Mar 16,10 ADVANCE DIRECTIVE, GERI ASSESSMEN
- Mar 16,10 ADVANCE DIRECTIVE DISCUSSION, GERI
- Feb 12,10 Adverse React/Allergy, ** No Location **, RC
- Nov 24,09 SCI ATTENDING NOTE, RADIATION THEF
- Nov 06,09 ADVANCE DIRECTIVE, ** No Location **, M
- Oct 26,09 PSYCH ALERT, ADMINISTRATIVE DOCUM
- Oct 26,09 WORK THERAPY CONSULTS, MH CWT/S
- Oct 26,09 VI/CWT SUPPORTED EMPLOYMENT NOT
- Oct 23,09 RADIATION THERAPY F/U NOTE, TELEPH
- Oct 23,09 RADIATION THERAPY F/U NOTE, RADIAT

Advance Directive Discussion Feb 24,11

LOCAL TITLE: ADVANCE DIRECTIVE DISCUSSION
STANDARD TITLE: ADVANCE DIRECTIVE DISCUSSION
DATE OF NOTE: FEB 24, 2011@13:40 ENTRY DATE: FEB 24, 2011@13:41:37
AUTHOR: CLARK,ELIZABETH M EXP COSIGNER:
URGENCY: STATUS: COMPLETED

Check one:
 Veteran has decision making capacity for discussion of advance care planning.
 Veteran lacks decision making capacity for discussion of advance care planning.
If the veteran were unable to make medical decisions for him or herself, who would he/she desire to make medical decisions for him/her?
Name: Jane Exam

Relationship: girlfriend
Phone (home):917 222 2222
Phone (work):
Phone (cellular):

Who would the veteran choose as an additional or alternate decision-maker(if any)?

Summary of discussion of goals and wishes for medical treatments in life threatening conditions:
Patient states that he values his independence and does not want to be a burden on his family. He understands that he has a life limiting illness. "I have lived a good life. I love my family and enjoybeing with them but when it's my time, it's my time. Don't put me on any machines. Just let me go with dignity."
Patient would like his girlfriend, whom he refers to as his "wife", to be his surrogate medical decision maker. He is still married, though has been separated for many years.Since his legal wife is his legal NOK, patient has agreed to complete a new AD form.
Patient has discussed his wishes with his girlfriend as well as with his adult children.

/es/ ELIZABETH H CLARK
PHYSICIAN (STAFF)
Signed: 02/24/2011 13:50

Print Close

EMERGENCY ROOM ED VISIT PROBLEM FOCUSED
Diagnoses: Pain in Joint, site unspecified (ICD-9-CM 719.40) (Primary)
Procedures: ED VISIT PROBLEM FOCUSED

Templates Reminders

Encounter New Note

Cover Sheet Problems Meds Orders Notes Consults Surgery D/C Summ Labs Reports

Implementation Methods

	VAMC 1 (2003-2012)	VAMC 2 (2009-2012)
Champions	6 physicians, 9 NPs	2 physicians, 1 APN
Settings for Clinician Modeling	NH, geriatrics clinic, home based primary care, geriatrics & palliative care consults	Geriatrics & palliative care consults
Interventions	<ul style="list-style-type: none"> • Role modeling: clinic, hospital, NH • Noon conferences • Intense training for geriatrics /palliative care fellows and rotating residents • Monthly orientations • Performance improvement initiatives 	<ul style="list-style-type: none"> • Role modeling: clinic, hospital, consult, • Noon conferences • Intense training for geriatrics /palliative care fellows • Large group lectures • Provider detailing

Results: ACP notes completed

Fiscal Year	VAMC 1	VAMC 2
2003	446	-
2006	740	-
2009	949	208
2010	1082	356
2011	1292	329
2012	1280	360

Results: Impact of EMR tool and training (VAMC 2)

- Increased rates of Health Care Agent designation
 - AD completion increase from 38% to 53%¹
- EOL wishes recorded for patients w/o capacity
 - 11 - 21% of ACP discussions with surrogates^{1, 2}
- Training improved quality of ACP documentation
 - Goals/values, desired care settings, and reasons for not expressing care preferences²
- ACP became an ongoing process after training
 - 21% of notes documented “follow-up” ACP discussions²

1) Awan K, et al., AGS Annual Meeting, 2010

2) Nakagawa S, et al., AGS Annual Meeting, 2012

Breakout Session # 1: Stakeholders

- Discussion (10 minutes)
 - Identify stakeholders
 - Obtain buy-in
 - Moving the product through the system
- Report back (5 minutes)

Breakout Session # 2: The Products

- Discussion (20 minutes)
 - Are there already established products?
 - What is in development?
 - “Pitfalls” and “lessons learned”
- Report back (5 minutes)

Thank-You

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