



Software Solutions for Home Healthcare

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Introduction

- Mark Madigan, President, IT Cadre
- 24 Years Of Experience, 20 in Information Technology with IBM, MCI, and IT Cadre
- Senior Engineer and Executive
- Systems and Software Development
- BS, Engineering, United States Military Academy
- Home Healthcare System - @HomeCare



Agenda

- What Is Home Care Automation
- What Is Its Current Role In Home Care
- Information Technology Role In Other Industries
- Enabling Technologies
- What Software Can Provide Home Care
- The Benefits
- Some Things We Have Done
- What Makes Automation Successful



What is Home Healthcare?

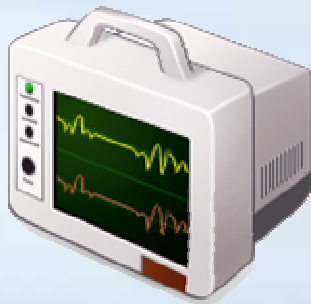
- Skilled Nursing
- Physical Therapy
- Occupational Therapy
- Speech Therapy
- In Home Aides
- Virtual Rounds (future)





Home Care Automation

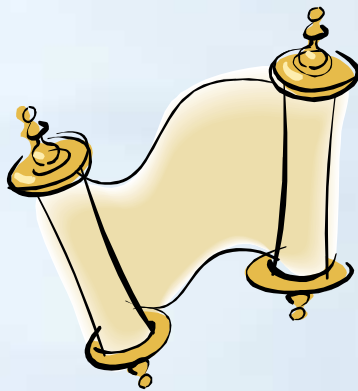
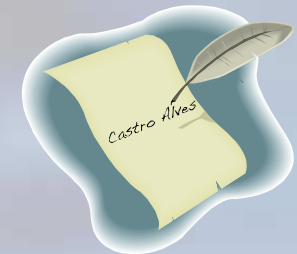
- Application of Technology to enable patient care in a home setting.
 - Range of devices – from blood pressure monitors, to surveillance sensors to medication dispensers
 - Includes technology to manage information





Information Technology

Purpose: Remove the burden and monotony associated with record keeping while increasing conformity and accuracy.



Information Technology

- Organizing information
 - More rapidly consumable
 - Something you do every day
-
- Concept is not new - Supporting technologies have evolved
 - Broad access and availability
 - Distributed computing



Current Home Care Information Flow



Caregiver Information System



- Entry of same data multiple times
- No error checking at time of care
- Multiple sources of data
- Less time for patient care
- No shared information
- Delayed patient information
- No management use of data
- Limited sharing amongst care team

Too Much Paper





Enabling Technologies for Electronic Medical Records Systems



Who is Lawrence L. Weed?

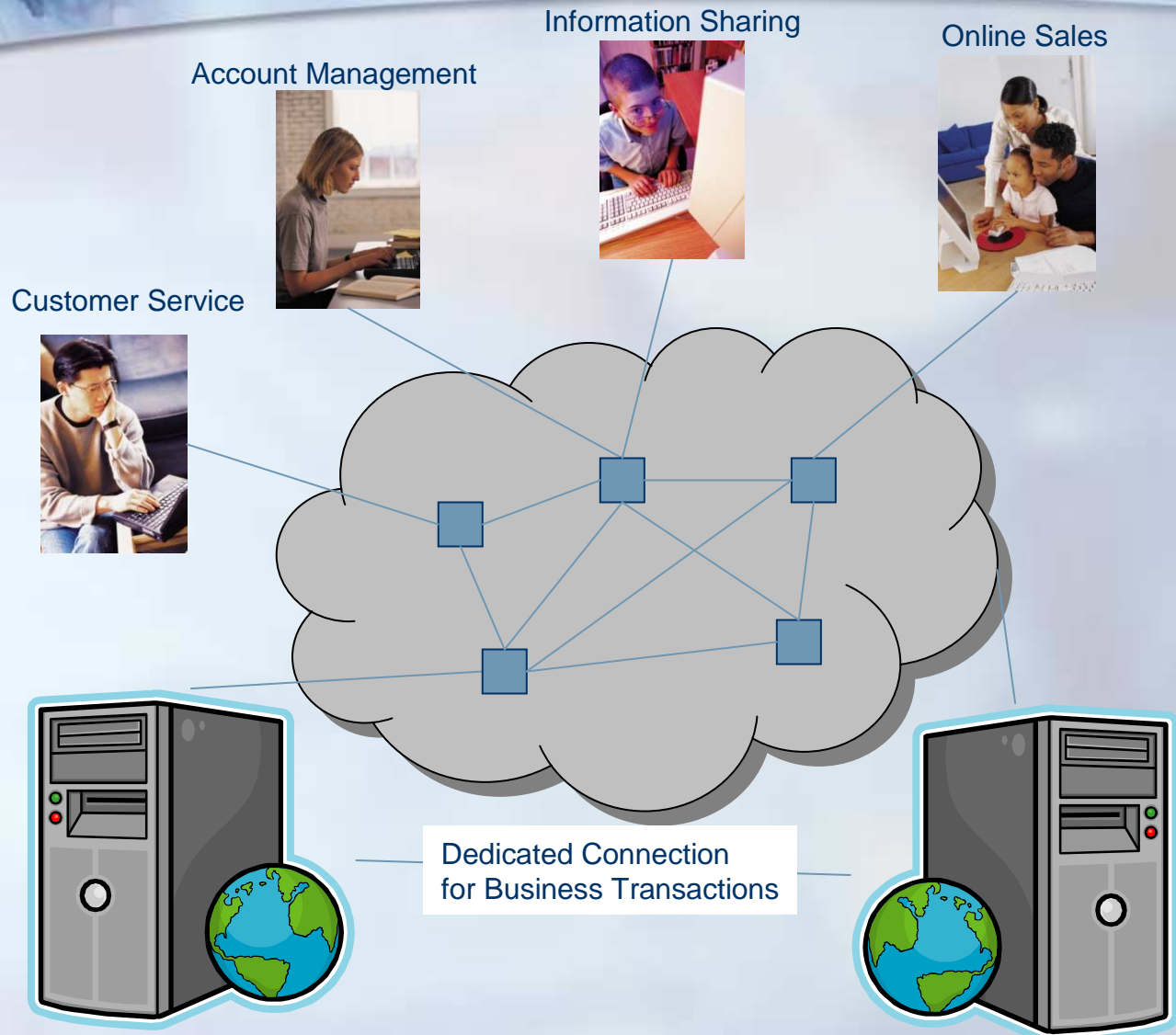
- The physician, who in the 1960s, first described the concept of **electronic medical records**.
- Dr. Weed described a system to automate and reorganize patient medical records to enhance their utilization and thereby lead to improved patient care.



A Lot Has Changed in 40 Years

Technology	1960's	Today
Telecommunications	Telephone	Internet, wireless, Telemedicine
Computing Capacity	IBM 360: 4K memory, 7.2M HD, Connect up to 200 feet away, 3 MIPS, \$133k to \$5.5M	Dell Server, Dual CPU, 4G memory, 2 500G hard drives (RAID), 250MIPS, \$5K
Wireless Mobile Devices	None	Tablets, Handhelds, Broadband Cards
Data Entry Devices	Punch cards	Keyboard, Mice, Pens, Voice, Touch
Medical Devices	Few	Many

Other Industries Applications

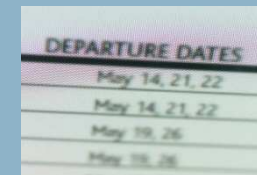


Banking



11/16 Monthly Statement	
Date	Amount
10/20	\$ 738.97
10/21	\$26.82
10/22	\$80.53
10/23	\$24.21
10/24	\$62.34
10/25	\$58.42

Travel

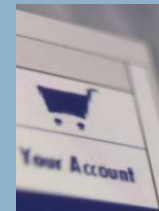


DEPARTURE DATES
May 14, 21, 22
May 14, 21, 22
May 19, 26
May 19, 26

Telecommunications



Retail Sales



Name the System

■ User Controlled Security



facebook

☐ Remember Me [Forgot your password?](#)

Email Password

Facebook helps you connect and share with the people in your life.



Sign Up
It's free and anyone can join

Full Name:

Your Email:

New Password:

I am: Select Sex:

Birthday: Month: Day: Year:

Why do I need to provide this?

By clicking Sign Up, you are indicating that you have read and agree to the [Terms of Use](#) and [Privacy Policy](#).

■ Easy to Use – No Training Required



Are We Ready Technically?

- National Encryption Standards
- Broadband/Wireless
- Tablets/Laptops/Handheld
- Web 2.0
- Browser Anywhere
- Increased User Technical Literacy
- Lower Cost of Computing



Home Care Factors

- Care Recipient May Not Be In Position To Aid In Care Management
- Decision Maker(s) And Care Provider Not Co-located
- Multiple Individuals And Specialties Involved
- Distributed Environment
- Extended Care Times
- Impacted And Concerned Family Members – Outside Of Immediate Area



What Technology Can Provide

1. Reduced Time in Patient Medical Records
2. Linking into Business operations of the practice
3. Reduce liability through Alerts, Validations Access to real-time lookups
4. Reduce time patients spend filling out forms
5. Better records transfer among doctors, caregivers and facilities
6. More pervasive access to records in industry
 - a. Physical controls only option available today
 - b. Physical and logical become an option in new systems



What Technology Can Provide (continued)

7. Virtual Rounds Become Enabled
 - Doctor in one location with Nurses, technicians, and aides in many providing information that the doctor can review. This happens today for Vital signs, movement indicators, in some cases even camera's – why would you not want to know & review the notes of the people who are seeing the patient daily.
8. Why not extend to patient's primary caregiver – usually a family member, being able to provide formatted readings and notes to the doctor.
9. Provide Family members not in immediate area with a sense of patient's status and care
10. A consolidated medication profile

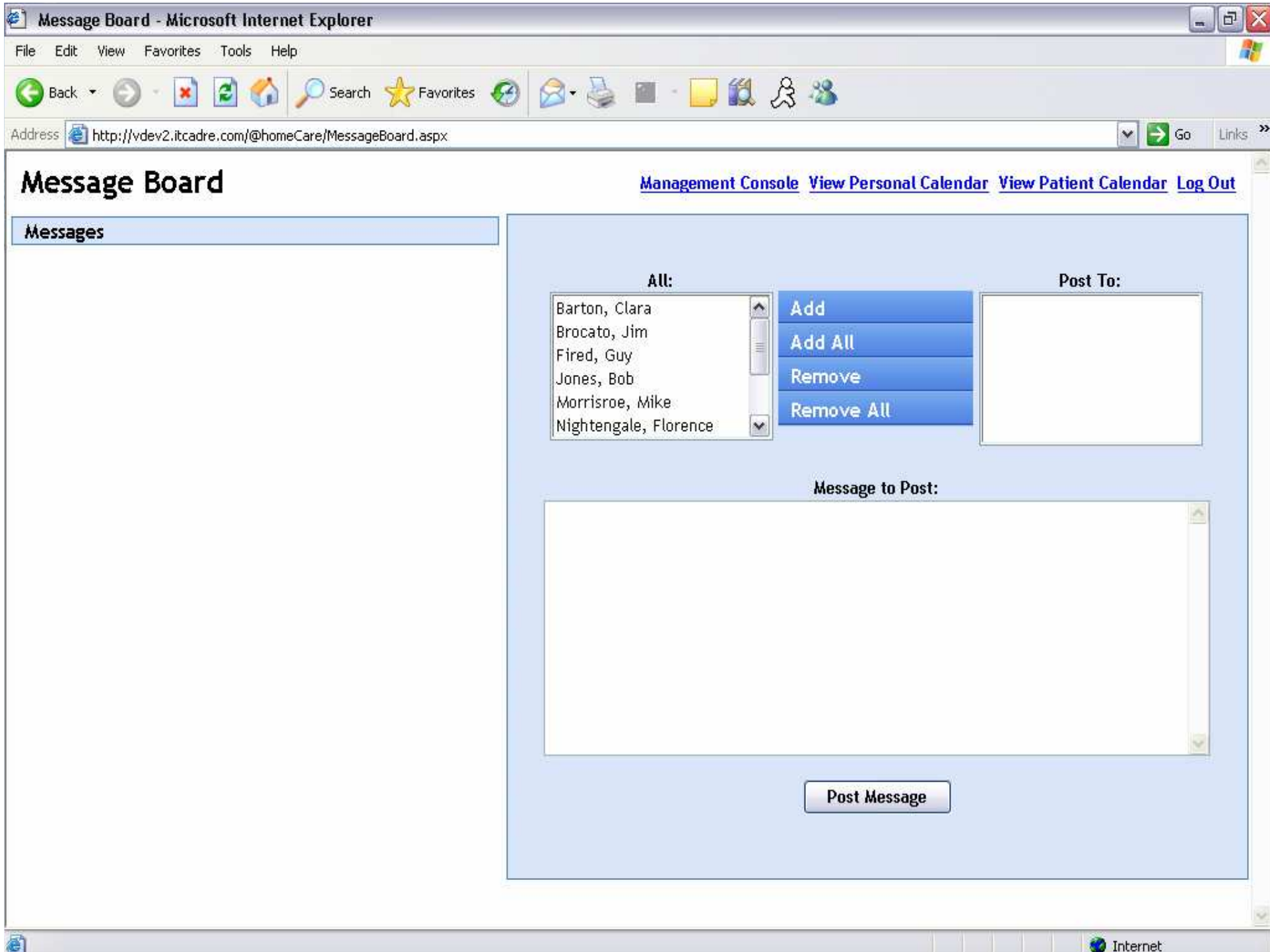


The Benefits

- Family feels involved – reduced calls, reduced emotional tension
- Enables fact based decision making, with opportunity to review facts
- Doctors can see patients w/o necessarily going to the site
- Access to data points across patients in the practice
- Access to outcomes with supporting documentation
- Facility cost goes down
- Cost of maintaining multiple people to perform routine and mundane but necessary tasks are reduced
- Increased effectiveness in consultation
- Tie ins to ensure effective billing

What Home Healthcare Companies Really Like





Management Console- Alerts - Windows Internet Explorer

http://vdev2.itcadre.com/@homecare/ManagementAlerts.aspx

Google

File Edit View Favorites Tools Help

Management Console- Alerts

Page Tools

Management Console

New Referral

Review Referral

Maintain Doctor

Maintain Forms

Maintain Validations

Maintain Alerts

Maintain Employees

Maintain Insurance

Alerts/Events

ReHospitalizations_In_Last_Week	0
Dr_Orders_To_Be_Mailed	42
Dr_Orders_Due_Back	6
485s_Needing_Review	16
485s_To_Be_Mailed	3
485s_Due_Back	2
Final_OASIS_Due_This_Week	0
Unassigned_Referrals	31
Overdue_SOC	24
OASIS_Forms_Needing_Completion	69
OASIS_Forms_Needing_Review	3
OASIS_Submission_Required	2
Discharges_Last_15_days	0
Transfers_last_15_days	0
No_Visits_5_or_more_days	41
Need_Recert	42

View My Calendar

View employee calendar

GO

Adverse Outcome Summary

Referral Log

Alerts

Caregiver Report

Mail Status

OASIS Tracker

Billing Report

Find Available Clinician

No Visits 5 or more days-

Select	McRoberts, Josh	2/1/2007 2:06:00 PM
Select	Nest, Empty	2/2/2007 3:08:00 PM
Select	Flintstone, Wilma	2/19/2007 10:49:00 AM
Select	Bones, Bare	2/21/2007 2:03:00 PM
Select	blox4, p	2/28/2007 2:01:00 PM
Select	Bloxham, Carol	3/1/2007 4:26:00 PM
Select	HonoreTest, FirstHonor	3/4/2007 2:23:00 PM
Select	Urban, Ingrid	3/6/2007 2:36:00 PM
Select	King, Burger	3/11/2007 11:45:00 AM
Select	Jason, Lopez	3/13/2007 2:16:00 PM
Select	Blox2, JJ	3/16/2007 8:05:00 AM
Select	LastName, FirstName	3/19/2007 1:40:00 PM
Select	Butler, Caron	3/23/2007 10:21:00 AM
Select	Woodruff, Bob	3/28/2007 9:40:00 AM
Select	Jagger, Mick	3/28/2007 3:10:00 PM
Select	Manning, Peyton	4/1/2007 4:24:00 PM
Select	Zimmerman, Robert	4/9/2007 2:29:00 PM
Select	Montana, Carlos	4/10/2007 1:53:00 PM
Select	Allman, John	4/23/2007 12:05:00 PM

Go Directly to this Patient:

Select a Patient

Message Board

Patient Calendar - Windows Internet Explorer

<http://vdev2.itcadre.com/@homecare/PatientCalendar.aspx>

File Edit View Favorites Tools Help

Patient Calendar

Patient Schedule

Patient Name: Allman, John

HHRG Code:

[Refresh](#)
[DME](#)
[Edit Patient](#)
[Visit Tracker](#)
[Hospitalization](#)

Legend:
Visit & Forms Complete
Executed Visit, Forms Incomplete
Scheduled Item
Missed Visit

Episode Period 4/2/2007-5/31/2007

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	S / R
	Apr 2 8:39AM SN/CM SOC 9:27AM SN	Apr 3	Apr 4	Apr 5	Apr 6 9:26AM SN	Apr 7	4 / 0
Apr 8	Apr 9 9:26AM SN	Apr 10	Apr 11 9:26AM SN	Apr 12	Apr 13 9:26AM SN	Apr 14	3 / 0
Apr 15	Apr 16 9:26AM SN	Apr 17	Apr 18 9:26AM SN	Apr 19	Apr 20 9:26AM SN	Apr 21	3 / 0
Apr 22	Apr 23 9:26AM SN 12:05PM SN	Apr 24	Apr 25 9:26AM SN	Apr 26	Apr 27 9:26AM SN	Apr 28	3 / 0
Apr 29	Apr 30 9:26AM SN	May 1	May 2 9:26AM SN	May 3	May 4 9:26AM SN	May 5	3 / 0
May 6	May 7 9:26AM SN	May 8	May 9 9:26AM SN	May 10	May 11 9:26AM SN	May 12	3 / 0
May 13	May 14 9:26AM SN	May 15	May 16 9:26AM SN	May 17	May 18 9:26AM SN	May 19	3 / 0

Orders
 SN 0-3 w for 9 wks (26)
 SN/CM DC 1-1 w (0)
 SN/CM SOC 1-1 w (1)

Add Order

Alerts
 485 needs to be completed and mailed
 Final Assessment may be overdue

Rejected Items

Referral
 485
 Medication Profile
 Case Communication
 Patient Outcome Measures
 Personal Calendar
 Overlay Personal
 Message Board

HOME HEALTH CERTIFICATION AND PLAN OF CARE

1. Patient's HI Claim No. 2345678901		2. (M0030) Start of Care Date 4/2/2007		3. Certification Period From : 4/2/2007 To : 5/31/2007		4. Record# MC0362		5. (M0010) Agency Medicare Provider Number: 15487R	
6. (M0040) Patient Name: <div>John <input type="checkbox"/> Allman <input type="checkbox"/></div> <div>Patient Phone 703-866-0498</div> <div>Patient Street Address 87 sigmid pl</div> <div>City Springfield VA 20145</div>				7. Provider Name, Address and Telephone Number <div>Sleepy Acres 703-485-9865</div> <div>4857 Orchard Lane</div> <div>Ashburn VA 20148</div>					
8. (M0060) Birth Date: 2/28/1932				9. (M0069) Gender: Male <input checked="" type="checkbox"/>		10. MEDICATIONS: DOSE FREQUENCY ROUTE: (N)ew (C)hanged			
11 ICD-9-CM V58.72		(M0230) Primary Diagnosis AFTERCARE FOLLOWING SURGERY OF		Date: 03/13/2007					
12 ICD-9-CM		(M0240) Surgical Diagnosis		Date:					
13 ICD-9-CM		(M0240) Other Diagnoses		Date:					
14 DME AND SUPPLIES:						15 SAFETY MEASURES:			
16 NUTRITIONAL REQUIREMENTS NEW OR CHANGED:						17 ALLERGIES:			
18A FUNCTIONAL LIMITATIONS: <div><input type="checkbox"/> Amputation <input type="checkbox"/> Paralysis <input type="checkbox"/> Legally Blind <input type="checkbox"/> Bowel/Bladder Incontinence <input type="checkbox"/> Endurance <input type="checkbox"/> Dyspnea with minimal exertion <input type="checkbox"/> Contracture <input type="checkbox"/> Ambulation <input type="checkbox"/> Other (specify): <input type="checkbox"/> Hearing <input type="checkbox"/> Speech</div>						18B ACTIVITIES PERMITTED: <div><input type="checkbox"/> Complete bed rest <input type="checkbox"/> Partial weight bearing <input type="checkbox"/> Wheelchair <input type="checkbox"/> Bed rest with BRP <input type="checkbox"/> Independent at home <input type="checkbox"/> Walker <input type="checkbox"/> Up as tolerated <input type="checkbox"/> Crutches <input type="checkbox"/> No Restrictions <input type="checkbox"/> Transfer bed-chair <input type="checkbox"/> Cane <input type="checkbox"/> Other: <input type="checkbox"/> Exercise prescribed</div>			
19 MENTAL STATUS: <div><input type="checkbox"/> Oriented <input type="checkbox"/> Comatose <input type="checkbox"/> Forgetful <input type="checkbox"/> Agitated <input type="checkbox"/> Depressed <input type="checkbox"/> Disoriented <input type="checkbox"/> Lethargic <input type="checkbox"/> Other:</div>									
20 PROGNOSIS: <div><input type="checkbox"/> Poor <input type="checkbox"/> Guarded <input type="checkbox"/> Fair <input type="checkbox"/> Good <input type="checkbox"/> Excellent</div>									
21. Orders for Discipline and Treatments (Specify amount/Frequency/Duration) SN (0-3/week for 9 weeks) Assess, Perform, Instruct Trach care; Assess, Perform Measures to recognize Cardiac Dysfunction and relieve complication; Assess VS & all body systems, knowledge of disease process and its associated care and treatment, med regimen knowledge, and s/s complications necessitating medical attention.; Implement and Instruct Standard Precautions/Infection Control. Implement and Instruct Medication Regimen, including dosage, side effects, name, route, frequency, desired action & adverse reactions. Assess Medication Compliance/Med Set-up.; Implement High Risk for Re-Hospitalization Protocol to include: Alert other team members, compare pre-hospital meds with meds on inpatient discharge list or review current meds if patient was not discharged from inpatient setting; prep the Pt med list and review w/ patient during every visit; id meds prescribed but not obtained; determine pt's ability to safely and accurately administer meds; enlist pt/cg agreement to keep updated, complete, and current list of meds									
22. Goals/Rehabilitation Potential/Discharge Plans									

Management Console- Adverse Event Outcomes - Windows Internet Explorer

http://vdev2.itcadre.com/@homecare/ManagementAEO.aspx

File Edit View Favorites Tools Help

Management Console- Adverse Event Outcomes

View My CalendarView employee calendarGO

Management Console

New ReferralReview ReferralMaintain DoctorMaintain FormsMaintain ValidationsMaintain AlertsMaintain EmployeesMaintain Insurance

Alerts/Events

Adverse Outcome SummaryReferral LogAlertsCaregiver ReportMail StatusOASIS TrackerBilling ReportFind Available Clinician

PeriodSeptember 2006toDecember 2007Go

AdverseEvent	Agency_Ratio	Agency_Percent
Emergent Care for Injury Caused by Fall or Accident at Home	3/11	27.27%
Emergent Care for Wound Infections, Deteriorating Wound Status	1/11	9.09%
Emergent Care for Improper Medication Administration, Medication Side Effects	0/11	0%
Emergent Care for Hypo/Hyperglycemia	0/11	0%
Development of Urinary Tract Infection	1/1	100%
Increase in Number of Pressure Ulcers	1/8	12.5%
Substantial Decline in 3 or More Activities of Daily Living	0/1	0%
Substantial Decline in Management of Oral Medications	0/0	0%
Unexpected Nursing Home Admission	0/3	0%
Discharged to the Community Needing Wound Care or Medication Assistance	0/3	0%
Discharged to the Community Needing Toileting Assistance	0/1	0%
Discharged to the Community with Behavioral Problems	0/2	0%
Unexpected Death	0/4	0%

View--Select--Side by SideGo

Go Directly to this Patient:Select a Patient

Message Board

ReHospitalizations_In_Last_Week0

Dr_Orders_To_Be_Mailed42

Dr_Orders_Due_Back6

485s_Needing_Review16

485s_To_Be_Mailed3

485s_Due_Back2

Final_OASIS_Due_This_Week0

Unassigned_Referrals31

Overdue_SOC24

OASIS_Forms_Needing_Completion69

OASIS_Forms_Needing_Review3

OASIS_Submission_Required2

Discharges_Last_15_days0

Transfers_last_15_days0

No_Visits_5_or_more_days41

Need_Recert42

Management Console- Adverse Event Outcomes - Windows Internet Explorer

http://vdev2.itcadre.com/@homecare/ManagementAEO.aspx

File Edit View Favorites Tools Help

Management Console- Adverse Event Outcomes

View My CalendarView employee calendarGO

Management Console

Adverse Outcome SummaryReferral LogAlertsCaregiver Report

Mail StatusOASIS TrackerBilling ReportFind Available Clinician

New ReferralReview ReferralMaintain DoctorMaintain FormsMaintain ValidationsMaintain AlertsMaintain EmployeesMaintain Insurance

Alerts/Events

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Final_OASIS_Due_This_Week0

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Overdue_SOC24

OASIS_Forms_Needing_Completion69

OASIS_Forms_Needing_Review3

OASIS_Submission_Required2

Discharges_Last_15_days0

Transfers_last_15_days0

No_Visits_5_or_more_days41

Need_Recert42

PeriodSeptember 2006toDecember 2007Go

AdverseEvent	Agency_Ratio	Agency_Percent	Barton, Clara_Ratio	Barton, Clara_Percent
Emergent Care for Injury Caused by Fall or Accident at Home	3/11	27.27%	0/4	0%
Emergent Care for Wound Infections, Deteriorating Wound Status	1/11	9.09%	0/4	0%
Emergent Care for Improper Medication Administration, Medication Side Effects	0/11	0%	0/4	0%
Emergent Care for Hypo/Hyperglycemia	0/11	0%	0/4	0%
Development of Urinary Tract Infection	1/1	100%	0/0	0%
Increase in Number of Pressure Ulcers	1/8	12.5%	1/4	25%
Substantial Decline in 3 or More Activities of Daily Living	0/1	0%	0/1	0%
Substantial Decline in Management of Oral Medications	0/0	0%	0/0	0%
Unexpected Nursing Home Admission	0/3	0%	0/2	0%
Discharged to the Community Needing Wound Care or Medication Assistance	0/3	0%	0/1	0%
Discharged to the Community Needing Toileting Assistance	0/1	0%	0/0	0%
Discharged to the Community with Behavioral Problems	0/2	0%	0/1	0%
Unexpected Death	0/4	0%	0/2	0%

ViewCase ManagerBarton, ClaraSide by SideGo

Go Directly to this Patient:Select a Patient

Message Board



So Why Isn't Everyone Doing it Now?

- Lack of consolidated capital
- Early attempts were products, not systems
- Promises were not realized because of failure to achieve entire objective
- Resistance to change
- Staff rejection



How To Be Successful

- Provider must be able to implement complete solution for the problem - system
 - Solution offered must include at least
 - Physical model
 - Logical model
 - Operational model
- Provider must be an active participant
- Your view of the solution will shift over time – Provider must be recognize and support that
- You need to discuss and manage project with a provider decision maker with technical know how



Summary

- Information technology is going to be a key enabler of Home Care
- Implementing a system is key to obtain a consolidated patient view in a distributed environment
- Solution provider needs to be active engaged participant



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