
Achieving the Hospital at Home

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Achieving the Hospital at Home

“Hospital at Home”: *Definition*

It can mean different things in different countries and contexts.

A Cochrane review defined it as “a service that **provides active treatment** in the patient’s home of a condition that otherwise would require acute hospital in-patient care”.



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Virtual Ward Concept

- Vital Sign Monitoring
- Lab Tests and Results
- Patient Assessments
- Medication Management
- Therapy Changes



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Target Areas

- **Chronic Conditions**
 - Congestive Heart Failure (CHF)
 - Diabetes
 - Coronary Obstructive Pulmonary Disease (COPD)
 - Renal Disease
- **Poly-Trauma**
 - Traumatic Brain Injury (TBI)
 - Post Traumatic Stress Disorder (PTSD)
 - Spinal Cord Injury (SCI)
- **Infectious Disease Management**
- **Transplant Patients**



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“Hospital at Home” Components

- **Medical Devices and Equipment**
 - Remote Monitoring
 - Patient Self-Test Devices
 - Therapy Delivery Devices
- **Bi-Directional Communications**
- **Pharmacy Fulfillment**
 - eMAR (Dosage Scheduling)
 - Unit Dose Packaging
 - Dispense / Delivery to Patient
- **Patient & Medical Provider Portal**



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In-Home Patient Centric

- **Medical Independence in the Home**
 - Remote Medication Management
 - Remote Evidence Based Diagnostic Monitoring
 - Wireless Notifications and Communication
 - Web Enabled Patient Portal
- **Financial Independence in the Home**
 - Affordable
 - Maintain Life Style
 - Reduce Hospital and Long Term Care Visits

Benefits to the Stakeholders



Physicians/Pharmacists/PAs/Nurses

- **No Change in Practice**
- **Fewer Phone Calls**
- **Hospital Style Patient Management**
- **Documentation for Reimbursement**



Payer

- **Immediate Cost Reduction**
- **Analytical Performance Assessment**
- **Medication Administration Record (MAR)**



Hospitals

- **Reduction in “Money Losing” ER Visits**
- **Increased Bed Availability**
- **Chronic Care Therapy in the Home**



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“Medication Management” *A Consistent Trend*

➤ CMS:

- Special Need Plans (SNP)
- Medication Therapy Management Program (MTMP)

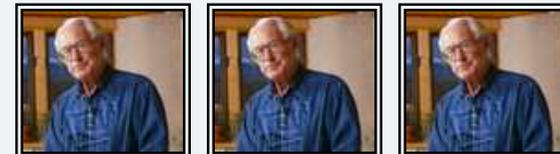
➤ Managed Care

➤ Veteran Affairs

- Office of Care Coordination Home Telehealth (CCHT) - 22,000+ patients with home telehealth



In-Home Medication Management



Why?:

- Over 1.7 Million Errors / Year
- Cost of Over \$200 Billion / Year

3-6 Patients / Day

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Technology: *A More Efficient Method*

**Not Practical – Severe
Nursing Shortage**



3-6 Patients / Day

**With
Automation**

Practical



150 Patients / Day

Bi-Directional Communications

- **Clinical Based Digital Consultation**

- Doctor
- Pharmacist
- Nurse
- PA



- **Electronic Health Coach and Portal**

**Notifications & Reminders to
Patient / Family Members / Doctors**





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Literature Search: *Tip of the Iceberg*



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Literature Search:

Satisfaction with hospital at home care

J Am Geriatr Soc. 2006 Sep;54(9):1355-63. Links

Leff B, Burton L, Mader S, Naughton B, Burl J, Clark R, Greenough WB 3rd, Guido S, Steinwachs D, Burton JR.
Bloomberg School of Public Health, Johns Hopkins University, Baltimore, Maryland, USA. bleff@jhmi.edu

OBJECTIVES: To examine differences in satisfaction with acute care between patients who received treatment in a physician-led substitutive Hospital at Home program and those who received usual acute hospital care. **DESIGN:** Survey questionnaire of participants in prospective, nonrandomized clinical trial. **SETTING:** Three Medicare-managed care health systems and a Department of Veterans Affairs Medical Center. **PARTICIPANTS:** Two hundred fourteen community-dwelling elderly patients who required acute hospital admission for community-acquired pneumonia, exacerbation of chronic heart failure, exacerbation of chronic obstructive pulmonary disease, or cellulitis, 84 of whom were treated in Hospital at Home and 130 in the acute care hospital. **INTERVENTION:** Treatment in a Hospital at Home model of care that substitutes for treatment in an acute care hospital. **MEASUREMENTS:** A 40-question survey measuring nine domains of care for patients and a 37-question survey measuring eight domains of care for family members. **RESULTS:** A higher proportion of patients were satisfied with treatment in Hospital at Home than with the acute care hospital in eight of nine domains, and this difference was statistically different in four domains. Hospital at Home patients were more likely than acute hospital patients to be satisfied with their physician (adjusted odds ratio (AOR) = 3.84, 95% confidence interval (CI) = 1.32-11.19), comfort and convenience of care (AOR = 6.52, 95% CI = 1.97-21.56), admission processes (AOR = 5.90, 95% CI = 2.21-5.76), and the overall care experience (AOR = 2.98, 95% CI = 1.08-8.21). Family members of patients treated in Hospital at Home were also more likely to be satisfied with multiple domains of care. **CONCLUSION:** Hospital at Home care was associated with greater satisfaction than acute hospital inpatient care for patients and their family members. These findings support further dissemination of the Hospital at Home care model.

PMID: 16970642 [PubMed - indexed for MEDLINE]



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Literature Search:

"Hospital at home" versus hospital care in patients with exacerbations of chronic obstructive pulmonary disease: prospective randomized controlled trial

BMJ. 2000 Nov 18;321(7271):1265-8. [Links](#)

[Davies L, Wilkinson M, Bonner S, Calverley PM, Angus RM.](#)

[Department of Medicine, University Hospital Aintree, Liverpool L9 7AL, UK.](#)

OBJECTIVES: To compare "hospital at home" and hospital care as an inpatient in acute exacerbations of chronic obstructive pulmonary disease. **DESIGN:** Prospective randomised controlled trial with three months' follow up. **SETTING:** University teaching hospital offering secondary care service to 350 000 patients. **PATIENTS:** Selected patients with an exacerbation of chronic obstructive pulmonary disease where hospital admission had been recommended after medical assessment. **Interventions:** Nurse administered home care was provided as an alternative to inpatient admission. **MAIN OUTCOME MEASURES:** Readmission rates at two weeks and three months, changes in forced expiratory volume in one second (FEV(1)) from baseline at these times and mortality. **RESULTS:** 583 patients with chronic obstructive pulmonary disease referred for admission were assessed. 192 met the criteria for home care, and 42 refused to enter the trial. 100 were randomised to home care and 50 to hospital care. On admission, FEV(1) after use of a bronchodilator was 36.1% (95% confidence interval 2.4% to 69.8%) predicted in home care and 35.1% (6.3% to 63.9%) predicted in hospital care. No significant difference was found in FEV(1) after use of a bronchodilator at two weeks (42.6%, 3.4% to 81.8% versus 42.1%, 5.1% to 79.1%) or three months (41.5%, 8.2% to 74.8% versus 41.9%, 6.2% to 77.6%) between the groups. 37% of patients receiving home care and 34% receiving hospital care were readmitted at three months. No significant difference was found in mortality between the groups at three months (9% versus 8%). **CONCLUSIONS: Hospital at home care is a practical alternative to emergency admission in selected patients with exacerbations of chronic obstructive pulmonary disease.**

[PMID: 11082090 \[PubMed - indexed for MEDLINE\]](#)



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Literature Search:

Reduced mortality: the unexpected impact of a telephone-based care management intervention for older adults in managed care.

Alkema GE, Wilber KH, Shannon GR, Allen D.

Davis School of Gerontology, University of Southern California, 3715 McClintock Avenue, Los Angeles, CA 90089-0191, USA.

OBJECTIVE: This analysis evaluated mortality over 24 months for Medicare managed care members who participated in the Care Advocate Program (CA Program) designed to link those with high health care utilization to home- and community-based services. **DATA SOURCE:** Secondary data from the CA Program, part of the California HealthCare Foundation's Elders in Managed Care Initiative. **STUDY DESIGN:** Randomized-control trial in which participants (N=781) were randomly assigned to intent-to-treat (ITT) and control groups. ITT group received telephonic social care management and 12 months of follow-up. Various multivariate analyses were used to evaluate mortality risk throughout multiple study periods controlling for sociodemographic characteristics, health status, and health care utilization. **POPULATION STUDIED:** Older adults (65+) enrolled in a Medicare managed care plan who had high health care utilization in the previous year. **PRINCIPAL FINDINGS:** ITT group had a significantly lower odds of mortality throughout the study (OR=0.55; p=.005) and during the care management intervention (OR=0.45; p=.006), whereas differential risk in the postintervention period was not statistically significant. Other significant predictors of mortality were age, gender, three chronic conditions (cancer, heart disease, and kidney disease), and emergency room utilization. **CONCLUSIONS:** Findings suggest that the care advocate model of social care management affected mortality while the program was in progress, but not after completion of the intervention phase. Key model elements accounted for the findings, which include individualized targeting, assessment, and monitoring; consumer choice, control, and participant self-management; and bridging medical and social service delivery systems through direct linkages and communication.

PMID: 17610441 [PubMed - indexed for MEDLINE]



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Literature Search:

Insufficient communication and information regarding patient medication in the primary healthcare

Bakken K, Larsen E, Lindberg PC, Rygh E, Hjortdahl P.

[Nasjonalt senter for telemedisin, Universitetssykehuset Nord-Norge, Postboks 359038 Tromsø. kjersti.bakken@telemed.no](mailto:kjersti.bakken@telemed.no)

BACKGROUND: Medicine management in primary health care involves several participants: the prescribing physicians, various health care personnel involved in drug administration and patients with varying degrees of will and competence to be compliant. Many things can go wrong in this process, resulting in medication errors. This qualitative survey focuses on how information is transferred within primary healthcare and how prescription and administration of medicines are documented. **MATERIAL AND METHODS:** A random selection of GPs and medical secretaries in nine regular GP practices and a strategic selection of community nurses, personnel in nursing homes and emergency clinics and in hospital departments at the University Hospital of Northern Norway were interviewed in a semi-structured way during the spring of 2005. Observations were undertaken in both nursing homes and units for community nurses. Observations were logged, interviews taped, transcribed and the total material analysed. **RESULTS:** Necessary information on medication was not easily accessible to health care personnel in charge of patient care. Obtaining the information was time-consuming and the quality was variable and perceived as unreliable. Five out of nine GPs regarded a pharmacy prescription to be sufficient information to community nurses regarding alterations in patient medication. GPs seldom signed prescriptions in the nurses' medication chart. Patient medication information was not present when needed. Community nurses on night duty therefore often did not know what drugs they were handing out during their home visits. Discharge notes from the hospitals were often delayed, they were not sent to community nurses and just three out of nine GPs updated their medication summaries when receiving such information. **INTERPRETATION: There is a need for improved communication and handling of information related to patient medication in primary health care. Patients in an ambulatory setting, who are not in charge of their own medication, are especially vulnerable to failure.**

PMID: 17599123 [PubMed - indexed for MEDLINE]



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Literature Search:

Can the health-care system meet the challenge of pandemic flu? Planning, ethical, and workforce considerations.

Levin PJ, Gebbie EN, Qureshi K.

School of Public Health, University at Albany, State University of New York, Rensselaer, NY, USA. pjlevin@earthlink.net

The federal pandemic influenza plan predicts that 30% of the population could be infected. The impact of this pandemic would quickly **overwhelm the public health and health-care delivery systems** in the U.S. and throughout the world. Surge capacity for staffing, availability of drugs and supplies, and alternate means to provide care must be included in detailed plans that are **tested and drilled ahead of time**. Accurate information on the disease must be made available to health-care staff and the public to reduce fear. Spokespersons must provide clear, consistent messages about the disease, including actions to be taken to contain its spread and treat the afflicted. **Home care will be especially important, as hospitals will be quickly overwhelmed**. Staff must be prepared ahead of time to assure their ability and willingness to report to work, and public health must plan ahead to adequately confront ethical issues that will arise concerning the availability of treatment resources. The entire community must work together to meet the challenges posed by an epidemic. Identification and resolution of these challenges and issues are essential to achieve adequate public health preparedness.

PMID: 17877303 [PubMed - indexed for MEDLINE]