

# Hospital in the Home and Inreach: moving mountains

Dr Michael Montalto  
PhD MBBS  
Hospital in the Home Medical Director  
Royal Melbourne Hospital  
Epworth Hospital



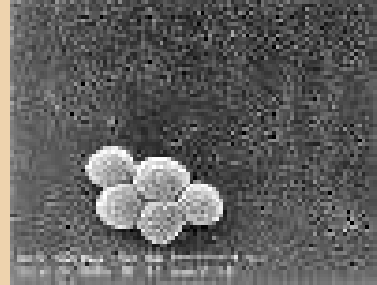


Fig 1. Percentage change in hospital admissions between 2000 v 2005 in Australia

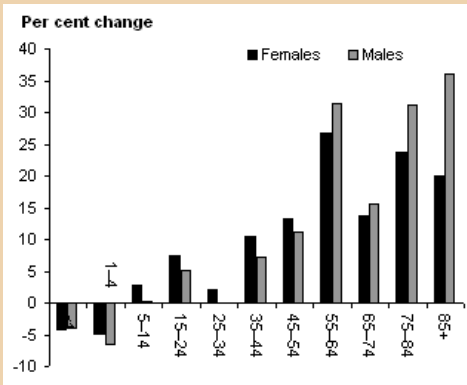
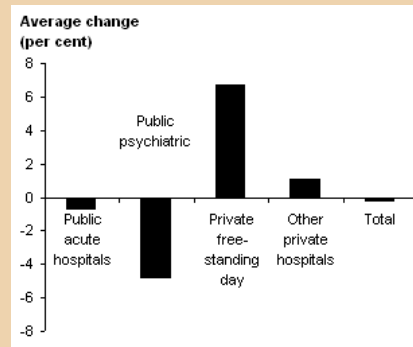


Fig 2. Annual change in number of available beds in Australia, 1996 v 2005



## Convergence of trends

- emergence/treatment of hospital risk
- patient and family preference
- optimum use of new portable technologies, including domestic
- access and efficiency
- from lethal to chronic, from young to old






### What is Hospital in the Home?

HIH is the management of patients in their own homes where such patients would require traditional inpatient admission

Acute bed **substitution** requires skills, knowledge and technology currently maintained only in acute hospitals



### Mission of HIH

To deliver acute hospital care services at home resulting in outcomes similar to, or better than, traditional hospital care.



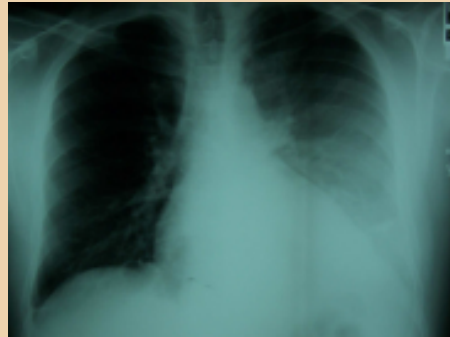
## Definition: what does HIH treat?

- **Infection:** bacterial/viral/fungal/nosocomial
- **Cancer** treatment and complications
- **Thromboembolic** disease
- **Cardiac failure**
- Acute **stroke**
- Acute **COPD**
- Autoimmune disorders
- **Diabetes** initiation and complications
- Complex wound management

## Definition: what does HIH do?

- **Intravenous therapy:** antibiotics, antivirals, antifungal, corticosteroids, chemotherapy, blood products, rehydration, TPN, inotropes
- **Low molecular weight heparin**
- **Insulin initiation**
- **COPD management**
- **Continues to expand**







## Monday 27 August 2007

- DVT
- PE
- Osteomyelitis right shoulder
- Osteomyelitis left foot in NH patient
- Infected left THJR
- Infected left shoulder prosthesis
- Urosepsis in self-catheter (MS)
- Left lower lobe pneumonia
- Prepatellar bursitis and cellulitis

- Vertebral + epidural abscess (2)
- Left knee septic arthritis
- Infected ICD endocarditis/sepsis (2)
- Injection site infection
- Perioperative anticoagulation
- Enoxaparin, vancomycin, tigacycline, flucloxacillin, penicillin, cephazolin, ceftriaxone, gentamycin, cephalothin, meropenem
- 8 CADD pumps
- 7 referred from ED, rest from ward

## Therapy

### Issues for HIH:

- less direct supervision
- drug stability and delivery
- effectiveness
- safety
- emergencies
- cost
- co-morbidities, esp diabetes



## Medical care in HIH

No agreement

No comparative studies of  
HIH medical models



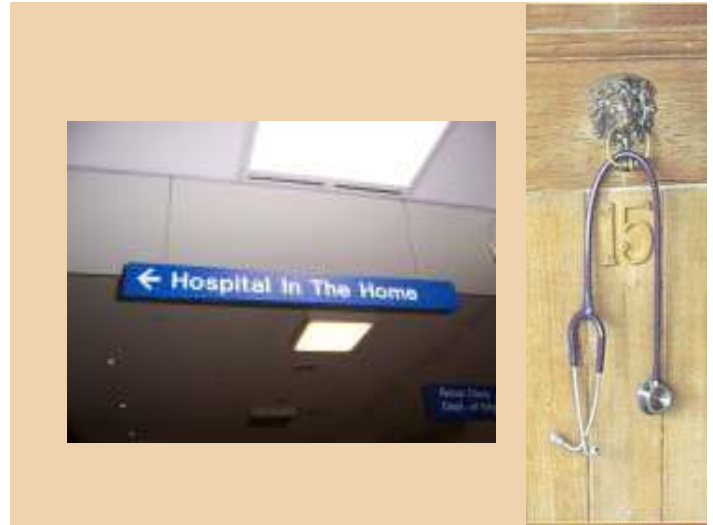
## Medical models in HIH

1. No medical care
2. Outpatient model
3. Infusion centre model
4. Usual community care
5. Clinical unit model



## Non medical models of HIH


- Low acuity, non-substitutive
- Emphasis on efficiency
- Reinforces the hospital – community gap
- Out of sight out of mind
- Low threshold for return to hospital, low threshold for admission, extension of LOS
- Patient burden and anxiety. Patients will accept if only way of leaving hospital



### Medical care models in HIH

5. Hospital Clinical Unit model

Patient remains inpatient – not discharged  
Hospital medical and nursing staff attend patient at home  
HIH Medical staff hospital affiliated  
24 hour cover  
Unit responsibility



### RMH HIH

- HIH is a 25 bed unit
- 24/7 day operation
- 1.5 medical EFT: registrar and consultant
- Ward rounds daily
- HIH bed card
- Admissions from ED/direct/wards



HIH is a variation on hospital medical practice because

- acuity
- technology
- acceptance of hospital
- funding requirements
- philosophy
- integration
- patient acceptance



## Impact of change to Clinical Unit Model at RMH

- Tran and Taylor
- Examined RMH HHU 2 years pre and post introduction of medical clinical model



## Impact of change to Clinical Unit Model at RMH

Table 1: Admission numbers pre and post medical unit

Condition	Pre (02-04)	Post (04-06)	Increase (%)
Cellulitis	171	319	87
DVT	78	127	63
Total	249	446	79



# Impact of change to Clinical Unit model at RMH

Table 2: Unplanned returns to hospital pre and post medical unit

	Pre (02-04)	Post (04-06)
Admission	17	6
ED presentation	8	1
All	25 (15.7%)	7 (4.4%)



## Quality in HIH: medical role

### Unplanned returns to hospital

- PE in DVT
- acute bleeding in anticoagulation
- non response to treatment
- line sepsis
- drug complication
- angina/acute LVF
- further diagnostic investigation



## Conclusion

- Aladdin's cave approach to technology cannot continue
- The mission of high quality HIH is to deliver technology and skills to sick patients at home with equivalent outcomes
- Medical involvement is critical
- Consensus required for development and research



## Politically incorrect, but

- The current approach to encouraging prevention and care co-ordination may not have the desired impact
- A different approach might deliver better results in encouraging better hospital utilisation and access
- It is more challenging and disruptive



## Inreach Service

Rapid access to hospital based nursing and medical resources for staff and patients of Residential Care Facilities

## Background

Winter 2006 (1/7-21/10):

275 ED presentations (High and Low)

- 50% admitted
- 1023 beddays (Mean 4.5)
- CVA/pneumonia/#/cellulitis, infected wounds/ sepsis

## Components of Inreach

### ACUTE

Hospital based nursing staff on call and available to advise or visit RCFs 7 days

Single point access by telephone

Hospital based medical support

Rapid access to radiology

Point of care diagnostics

Direct access to Hospital in the Home

### LONG TERM

Develop relationships

Education

Link with services lacking in the RCF

## Funding

- Human Services Department Victoria
- August 2008
- Ongoing for 2009-2010

## Outcomes 8/08 – 3/09

- 416 calls
- 358 visits to RCF (86%)
- 58 (18%) referrals managed by telephone advice or referral to specific service (e.g PEG etc)

## Problems

- CNS e.g stroke
- CVS e.g cardiac ischemia
- Renal/urinary
- Musculoskeletal
- Respiratory
- GIT
- Skin

## Outcomes

- Refer to GP 330 (79%)
- RMH ED 18, other ED 4 (5%)
- Direct admit to RMH HIH 39 (9%)
- Chronic wound clinic 11
- PEG service 3
- HARP 10
- Deceased 1

## Calls to medical staff

- 171 calls to Inreach MO (41%)
- 5 calls to usual GP (1%)
- 240 calls/visits with no MO assistance (58%)

## Case study

- Mr JD, 81 year old man
- Resident of Lynch's Bridge Aged Care
- Referred to In-Reach with "gingivitis & poor oral intake"
- Inreach visited
- Call to MO

- Dementia
  - Independently ambulant
  - Recognises & interacts with family, but minimal communication
  - Healthy appetite
  - Incontinent x 2
  - Moderate assistance for ADLs
- Osteoporosis

- Frusemide 40mg daily (indication unclear)
- Cholecalciferol 1000units daily
- Folic acid 5mg daily
- Paracetamol prn

- non-specifically unwell for about 2-3 weeks
  - less active, reduced appetite
  - no specific infective symptoms
- 10/7 gingivitis
  - worsening over the first week
  - associated with significant pain

- seen by LMO 7 days prior to referral
  - ceased regular meds
  - ordered bloods (Na 173 / Cr 200)
  - no further action
- seen by locum 2 days prior to referral
  - commenced IM benzyl-penicillin
  - commenced Norspan 5mg patch
- family concerned about treatment, requesting hospital attention

- Assessment
  - GCS E2 V2 M4 = 8
  - dehydrated ++
  - iStat Na 180 / Cr 270

Referred directly to HIH

- commenced IV ceftriaxone and metronidazole for gingivitis
- IV dextrose 1L stat + 1L overnight

	<u>30/3</u>	<u>31/3</u>	<u>1/4</u>	<u>2/4</u>	<u>3/4</u>	<u>4/4</u>	<u>6/4</u>	<u>7/4</u>
<b>Na</b>	178	174	170	168	162	150	144	144
<b>Cr</b>	270	230	200	150	140	140	100	100
<b>CRP</b>	154	-	135	127	132	217	185	136

- 1-2 L IV fluids (Dextrose/Hartmann's) per day
- IV ABx ceased
- alert, and mobilising
- taking oral fluids
- discussion on limits of treatment with family
  
- Discharged back to (near) usual status



## Conclusion

- Searching for atomic bomb solutions rather than silver bullets
- Confronting realities rather than pleasantries: increasing RCF population, decreasing nursing and medical staffing, protocolisation of inaction
- Taking control of your own workload



- Redefinition of hospitalisation and hospital technologies and intervention
- Hospitals would rather be inundated and unable to cope without threatening current culture.
- Technology is not respectful of culture



