



Home is where the health is!
Presentation to HITH Symposium
Brisbane 31st March 2011


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Director, Post Acute Care Services
Prince of Wales Hospital, Sydney,
Australia

Contents

- HITH @ POWH
- Where did we start?
- Where did we go wrong?
- Where are we going?
- What does the research show us about HITH?



Structure of service at Prince of Wales Hospital

An illustration on the left side of the slide shows a male doctor in a white lab coat standing next to an elderly female patient. The patient is wearing glasses, a purple top, and a green skirt, and is using a walking stick. The doctor is looking at the patient.

Post acute care	Acute care	Chronic Disease
Rehabilitation at home	Hospital in the Home	COPD
Orthopaedic	IV Antibiotics	Cancer
Geriatric	Clexane	

Staff work across all 3 sections, particularly on the weekend

24/7 365 days per year, but staff on active duty 13 hrs/day

Post Acute Care Services at Prince of Wales Hospital

Medicare incentive program 1989

Orthogeriatric service

Original aims

Decrease LOS for elderly
orthopaedic pts

Prevent unnecessary admissions

Increase elective admissions

Original results ??????



Subsequent growth

1993	Chronic Respiratory Disease Management	Unfunded
1994	General surgical post acute care (DoSA)	Research grant
1995	HITH	Research grant
1996	DEED (precursor of ASET)	Research grant



HITH evolution

- 1995 - 1 patient every fortnight in trial
- 1997 - post-trial,
 - evidence of effectiveness,
 - need to cultivate referrers
 - Gradual growth
- 2011 - 800+ patients/year
 - 40% from ED
 - Rest from wards, clinics, rooms, other hosps



So, what do you say after hello...?

- Develop protocols with referrers - specialities and ED, to make it (virtually) automatic
- Turn protocols into pathways
- Collect data to show that you are effective



D.V.T.

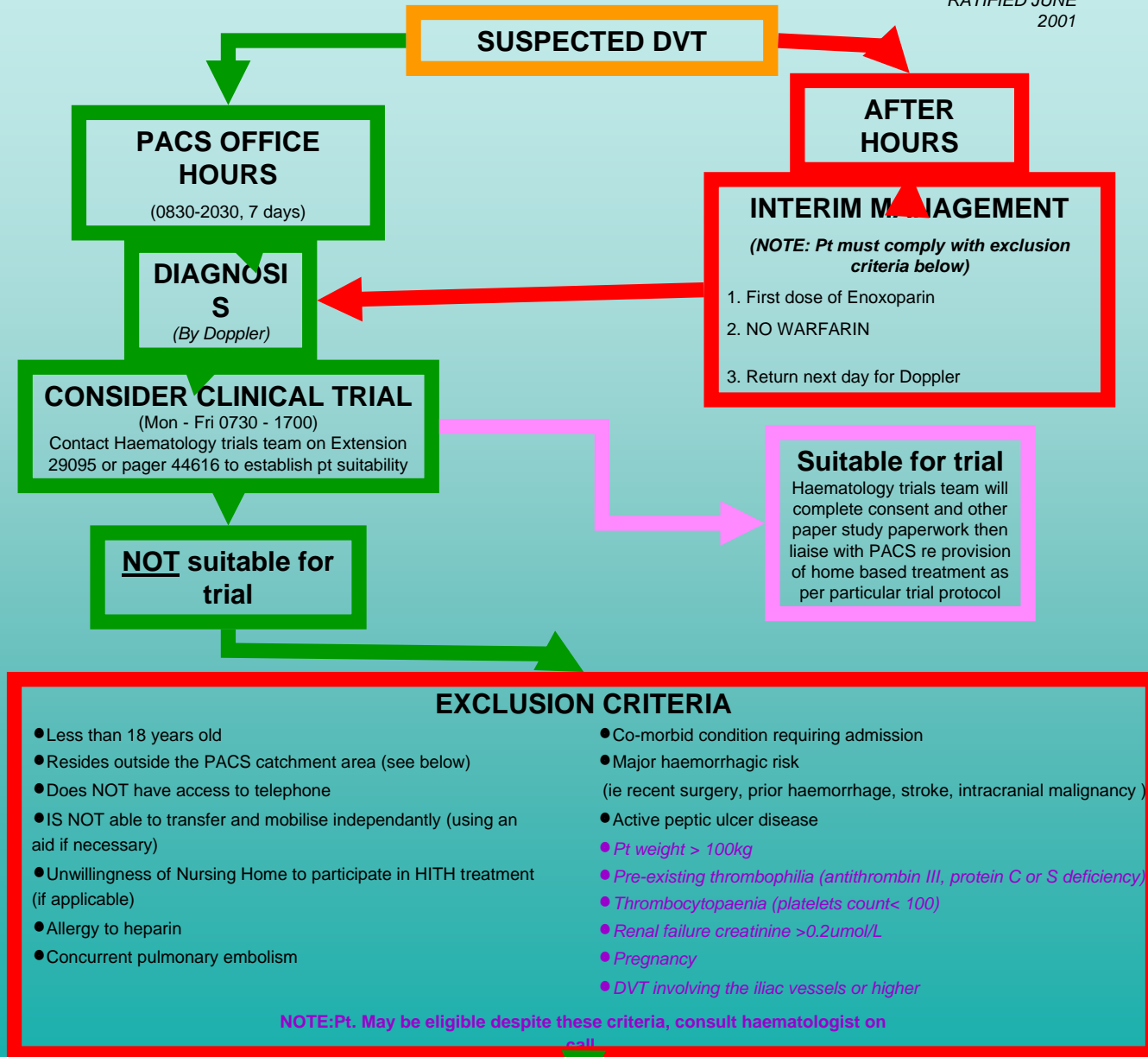
Protocol for Management with the Hospital in the Home (HITH) service

Dr Susan Hertzberg, Staff Specialist-Emergency

Tony Williams, Clinical Nurse Consultant-Post Acute Care

Dr Robert Lindeman, Staff Specialist-Haematology

RATIFIED JUNE 2001





MANAGEMENT

1. Registrar (ED or Medical) to contact PACS team (0830 - 2030 7 days) Extension 22470 or LINK Pager 87401 (Ring operator on 132222). If outside PACS hours of operation, complete documentation and place with details in PACS after hours book.
2. Take bloods for coagulation screen, FBC and EUC
3. Weigh Patient
4. If patient is taking anti platelet agent or oral contraceptive pill it should be ceased and pt. advised regarding alternative contraception.
5. Administer 1.5mg/kg of Enoxoparin subcutaneously
6. Administer 10mg of warfarin orally
7. Write internal prescriptions for;
 - ▶ Daily dose of Enoxoparin @ 1.5mg/kg for 7 days
 - ▶ Warfarin 1mg, 2mg, and 5mg tablets (10 of each)
8. Complete HITH Medical management plan
9. Prescribe medications on PACS medication chart as follows;
 - ▶ Enoxoparin 1.5mg/kg per day S/C
 - ▶ Warfarin 10mg day 1, 5mg day 2, and 5mg day 3 and thereafter according to INR
10. PACS to follow up at home for daily assessment, administration of enoxoparin, INR monitoring and titration of warfarin dose.
11. Pt. to have follow up in Haematology outpatients clinic in 2 weeks (PACS will arrange)

PACS catchment area;

Banksmeadow, Beaconsfield, Bondi Junction, Bondi, Botany, Bronte, Centennial Park, Chifley, Clovelly, Coogee, Daceyville, Eastlakes, Hillsdale, Kingsford, Kensington, La Perouse, Little Bay, Maroubra, Matraville, Malabar, Mascot, Phillip Bay, Randwick, Rosebery, Pagewood, Waverley, and Zetland.

Hospital in the home: a randomised controlled trial

Gideon A Caplan, John A Ward, Nicholas J Brennan, Janis Coconis, Neville Board and Ann Brown

Acute care of patients at home is one of the fastest-growing healthcare sectors in the United States¹⁻³ and is gaining acceptance in many countries.⁴ Although there have been randomised controlled trials of patients receiving home versus hospital treatment for deep venous thrombosis,⁵ there are few data from trials involving other conditions, or assessing the safety of acute care at home, especially for older patients. It is these patients who occupy an increasing proportion of hospital beds and may derive most benefit from home treatment.^{6,7}

Abstract

Objectives: To compare treatment of acute illness at home and in hospital, assessing safety, effect on geriatric complications, and patient/carer satisfaction.

Design: Randomised controlled trial.

Setting: A tertiary referral hospital affiliated with the University of New South Wales.

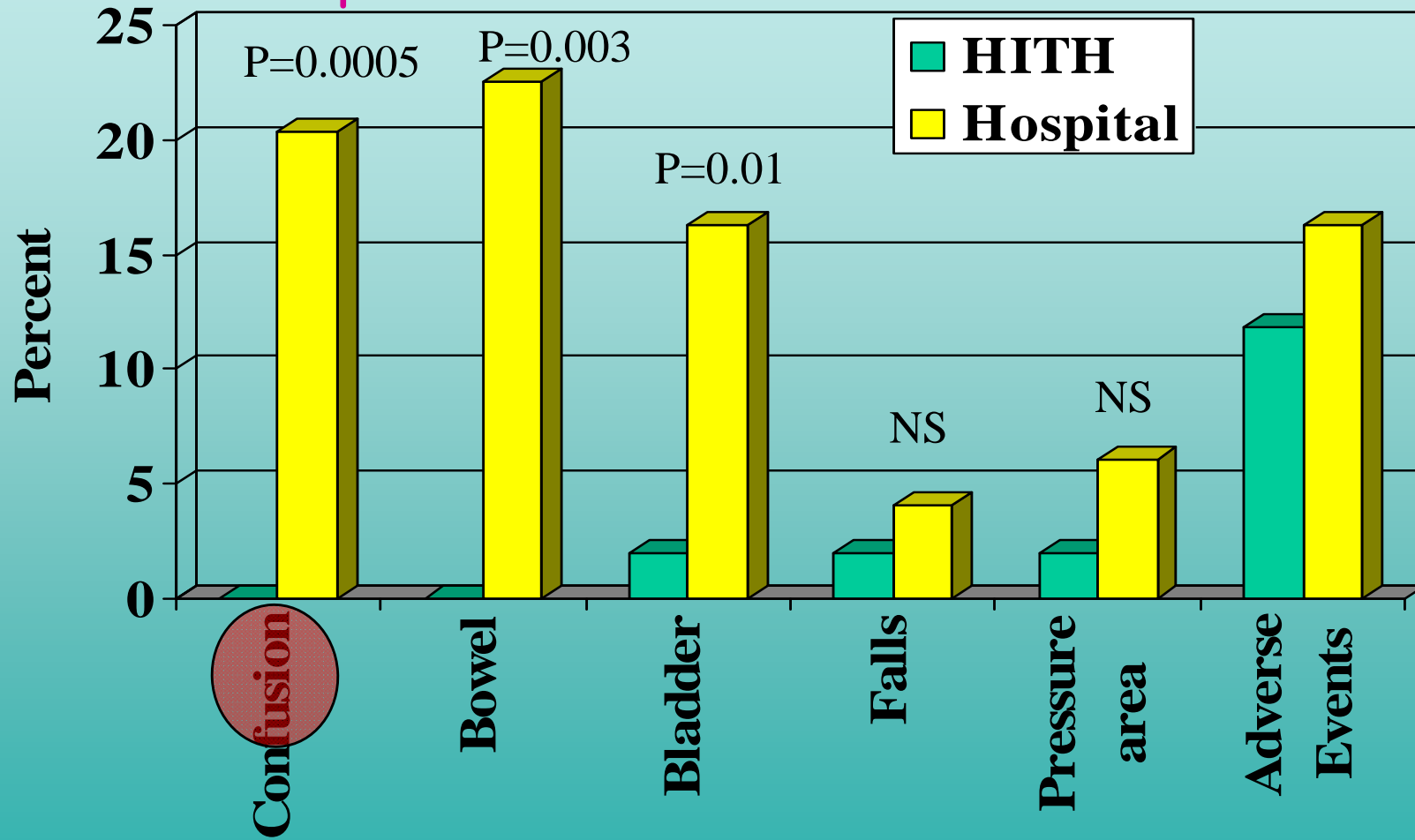
Participants: 100 patients (69% older than 65 years) with a variety of acute conditions, who were assessed in the emergency department as requiring admission to hospital.

Interventions: Patients were allocated at random to be treated by a hospital-in-the-home (HIH) service in their usual residence or to be admitted to hospital.

Main outcome measures: Geriatric complications (confusion, falls, urinary incontinence or retention, faecal incontinence or constipation, phlebitis and pressure areas), patient/carer satisfaction, adverse events, and death.

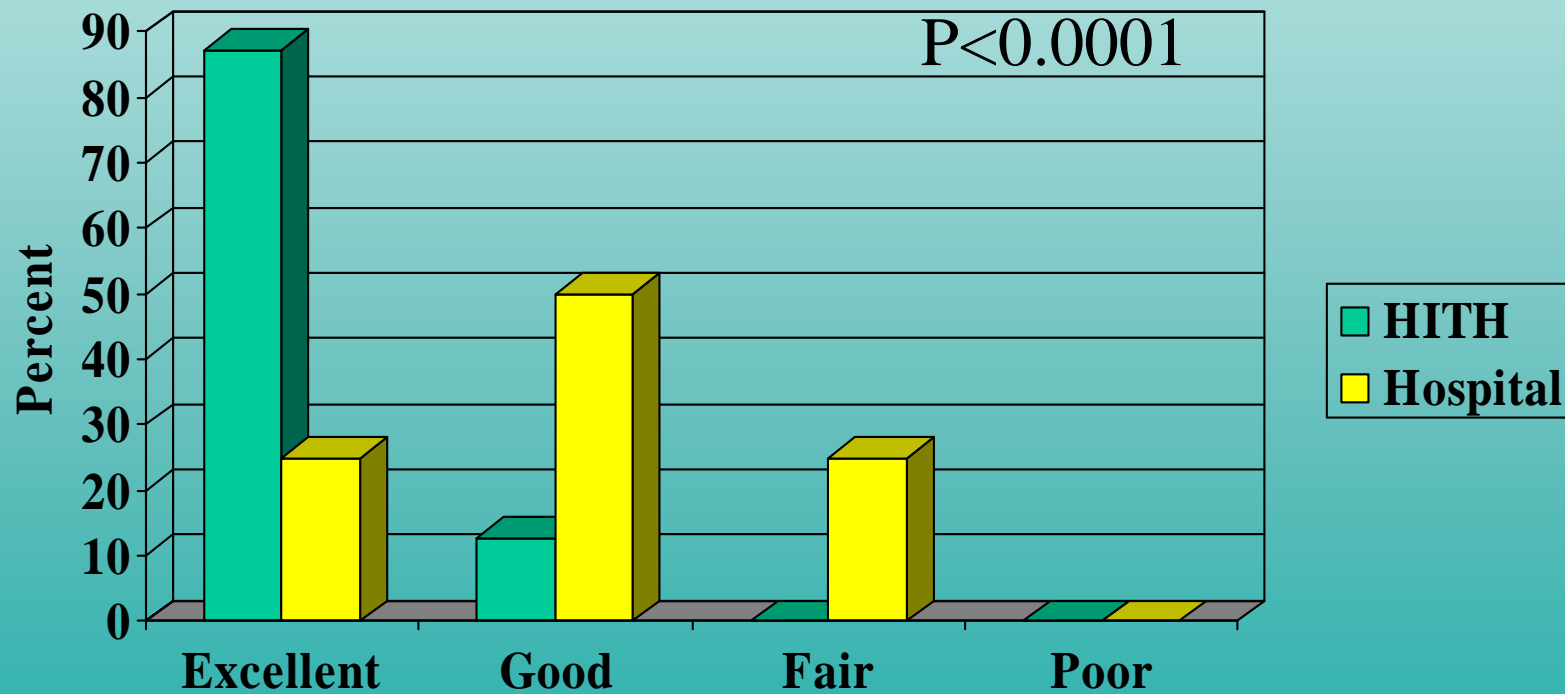
HITH Complications

Caplan MJA 1999; 170: 156-160



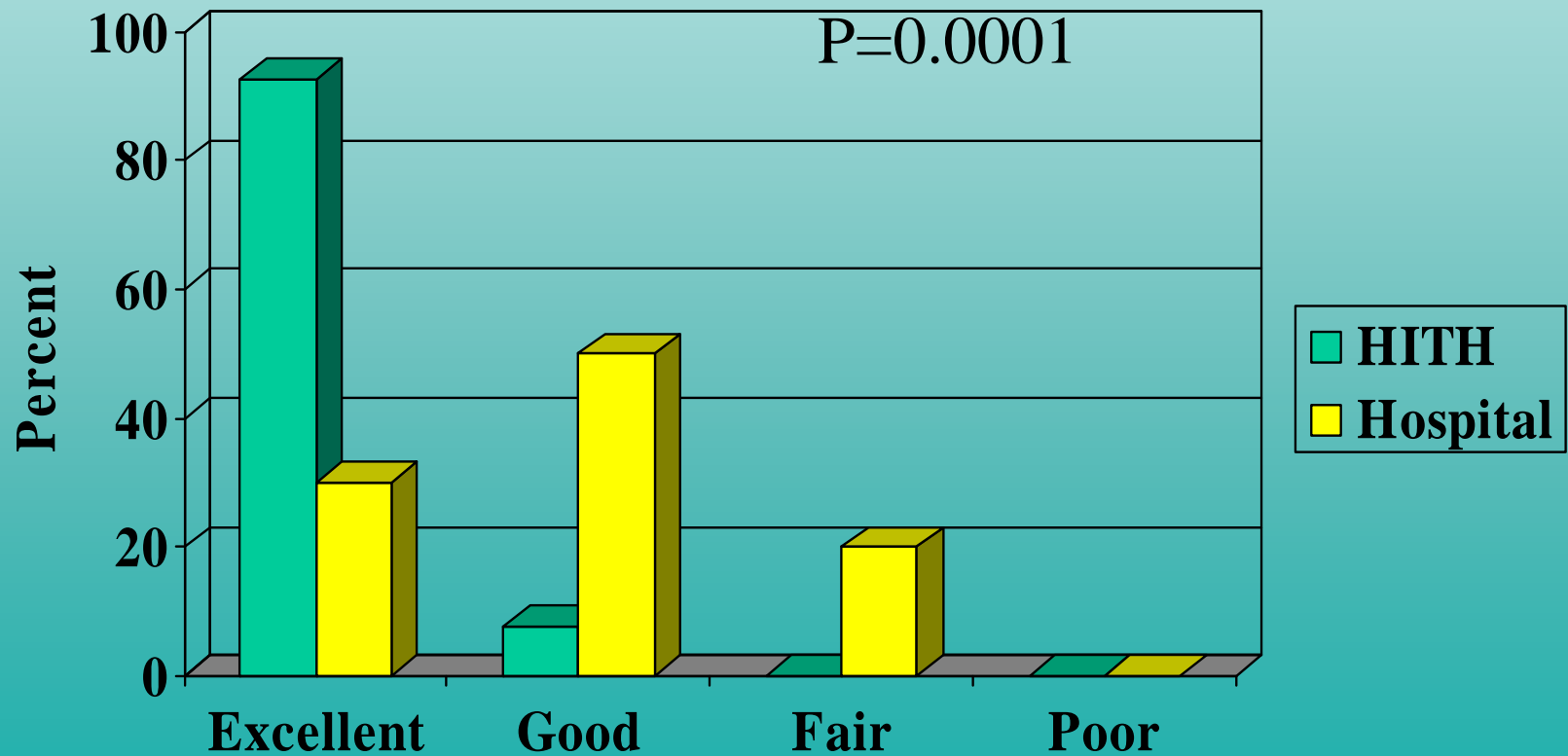
Patient Satisfaction

How would you rate your treatment overall?



Carer Satisfaction

How would you rate the treatment overall?



HITH Costing

Board ANZ J Pub Hlth 2000; 20: 24-9.

	HITH	Hospital
Mean	\$1794	\$3614
95% CI	\$1438- 2150	\$2881- 4347
	P <0.0001	



HITH Conclusions

- HITH offers selected patients
 - Decreased complications
 - Greater patient satisfaction
 - at lower cost
- The Hospital is not dead
- HITH is a viable, cost-effective option



REACH OUT TRIAL

- Rehabilitation of
- Elderly patients
- And
- Care at
- Home

- Or
- Usual
- Treatment



Does home treatment affect delirium? A randomised controlled trial of rehabilitation of elderly and care at home or usual treatment (The REACH-OUT trial)

GIDEON A. CAPLAN^{1,2}, JANIS COCONIS¹, NEVILLE BOARD³, ALLYN SAYERS¹, JAN WOODS¹

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Abstract

Background: delirium is a frequent adverse consequence of hospitalisation for older patients, but there has been little research into its prevention. A recent study of Hospital in the Home (admission substitution) noted less delirium in the home-treated group.

Setting: a tertiary referral teaching hospital in Sydney, Australia.

Methods: we randomised 104 consecutive patients referred for geriatric rehabilitation to be treated in one of two ways, either in Hospital in the Home (early discharge) or in hospital, in a rehabilitation ward. We compared the occurrence of delirium measured by the confusion assessment method. Secondary outcome measures were length of stay, hospital bed days, cost of acute care and rehabilitation, functional independence measure (FIM), Mini-Mental State Examination (MMSE) and geriatric depression score (GDS) assessed on discharge and at 1- and 6-month follow-up and patient satisfaction.



REACH OUT Baseline Characteristics



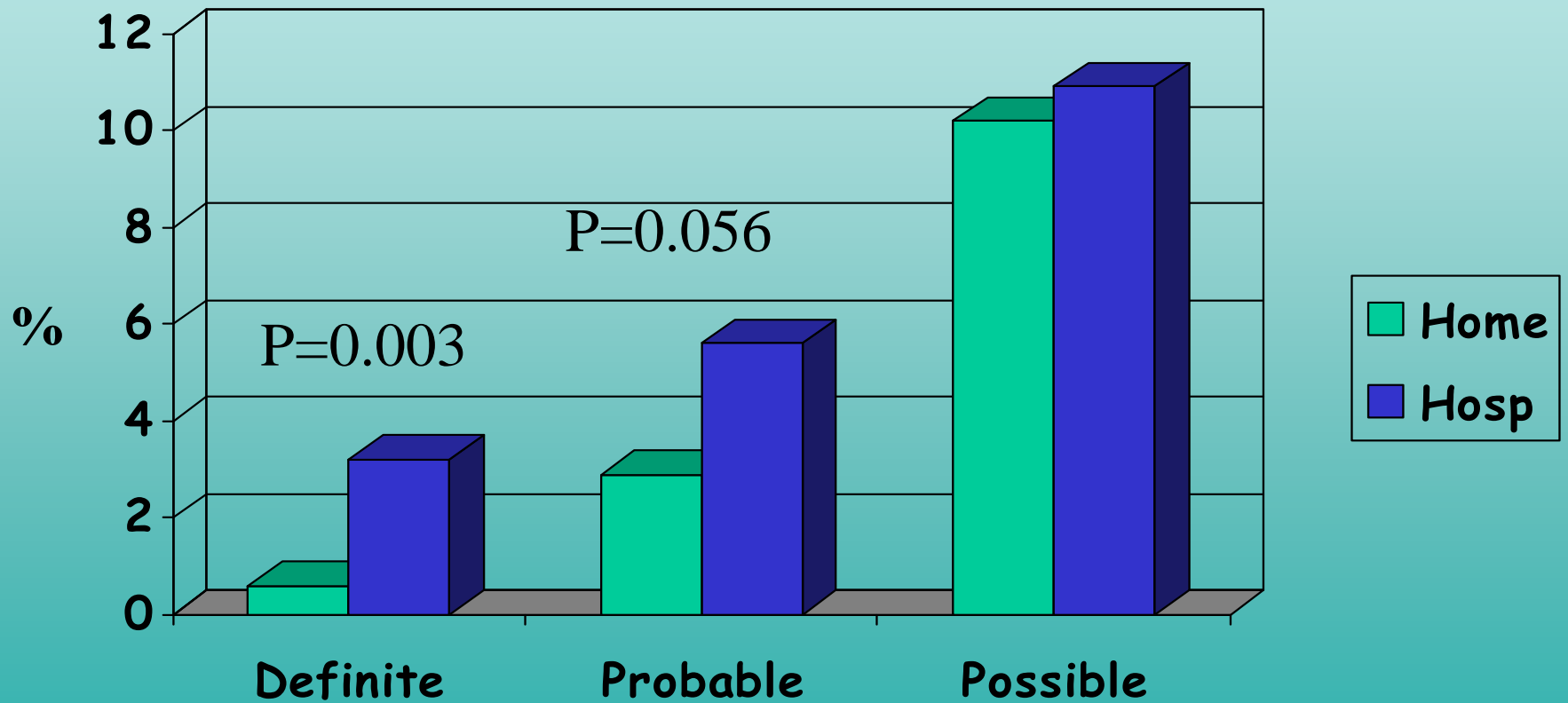
	Home Rehab	Hospital Rehab	P value
Number	70	34	
Age - Mean	83.9	84.0	0.93
Sex (F:M)	43:20	22:11	1.00
IHD n (%)	29 (46.03)	19 (57.58)	0.39
Diabetes n (%)	7 (11.11)	4 (12.12)	1.00
Dementia n (%)	17 (27.0)	7 (21.2)	0.63

Length of stay

	Home	Hospital	P value
Acute LOS	18.7	17.0	0.45
Rehabilitation LOS	16.0	23.1	0.016
Total length of episode of care	34.9	40.1	0.18
Hospital bed days	20.3	40.1	<0.001

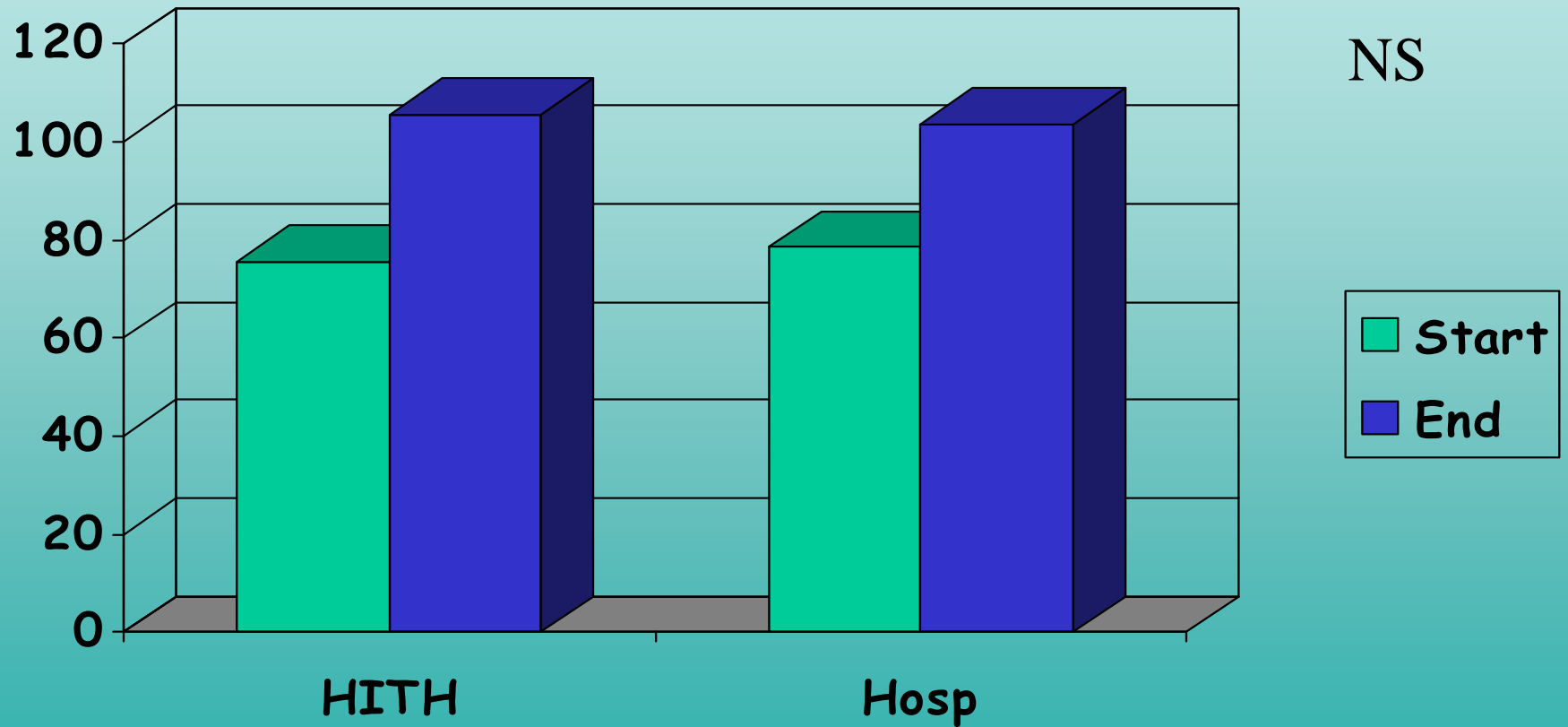


Positive Confusion Assessment Method (CAM) during rehabilitation



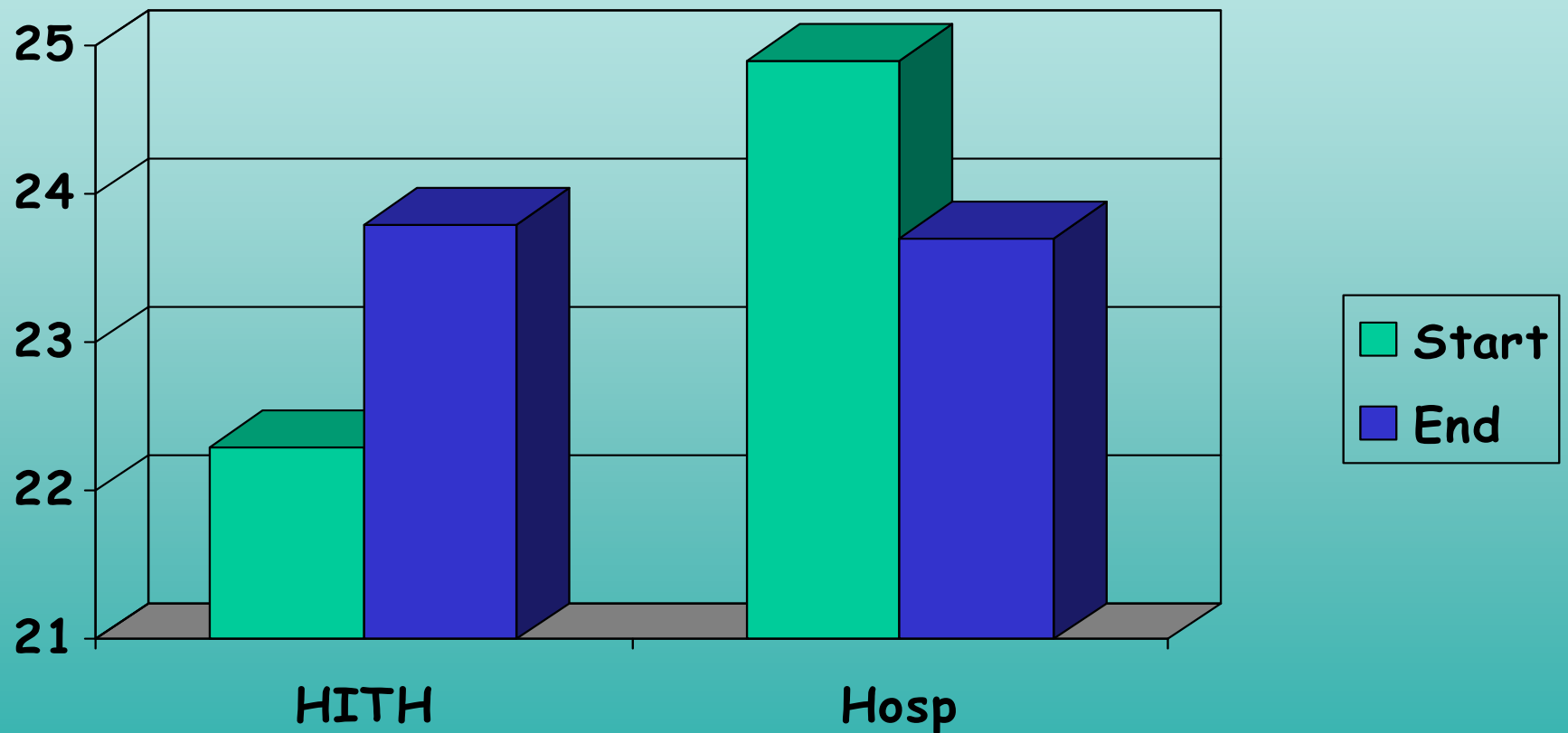
REACH OUT study

Functional Independence Measure (FIM)



REACH OUT study

Mini Mental State Examination (MMSE)

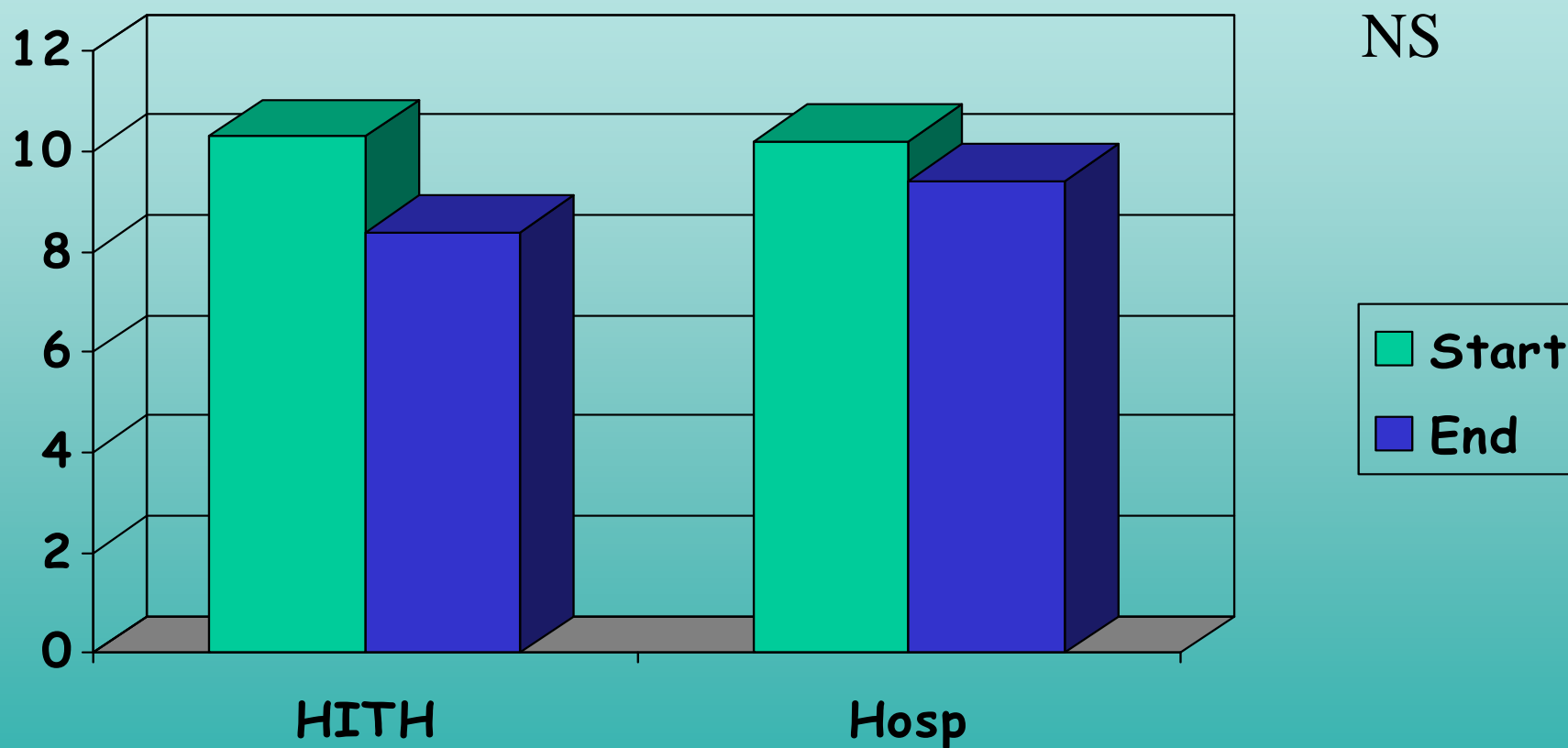


Between groups $p=0.085$

REACH OUT study



Geriatric Depression Scale

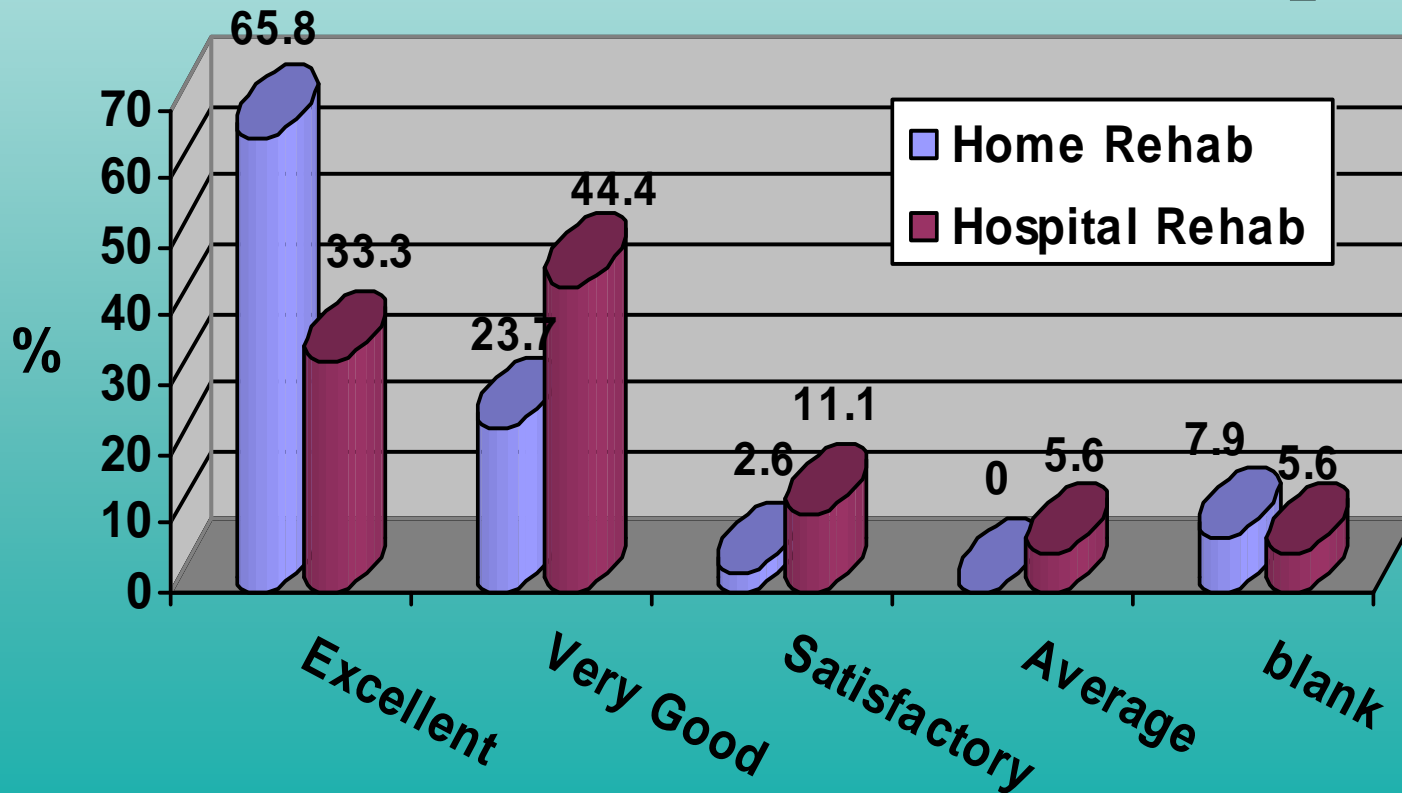


REACH OUT study

Patient satisfaction

Patient satisfaction with overall quality of care received from the rehabilitation team

$P = 0.006$



REACH OUT study

REACH OUT Costing

Cost	Home	Hospital	P value
Acute phase	\$13,292	\$11,003	0.234
Rehabilitation phase	\$ 5,954	\$14,413	<0.001
Total	\$18,147	\$25,042	0.011

REACH OUT study



Conclusion

- Alternatives to hospitalisation for older patients, where feasible, offer
 - superior health outcomes,
 - greater patient satisfaction
 - at a lower cost



Does 'Hospital in the Home' treatment prevent delirium?

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Delirium is a common problem, mostly affecting older patients in hospital, which results in greater mortality, nursing-home placement and cognitive and functional impairment. Delirium can be triggered by a wide range of conditions, treatments and procedures, as well as by certain environments. Some hospital environments have been causally implicated, but until it was possible to compare treatment in-hospital with treatment in other places, the observation remained at the level of an association. However, the development of 'Hospital in the Home' services has allowed clinicians to explore this question scientifically. Recently, a number of studies comparing treatment of acute conditions, both medical and surgical, and rehabilitation in hospital with treatment at home, have found a lower incidence of delirium with home treatment, as well as lower rates of the sequelae of delirium. Since delirium is an indicator of a wide range of subsequent poor outcomes, this information has broad implications for the delivery of hospital-level services to older patients, and means that health services should seek to provide Hospital in the Home services wherever older patients are treated.

Ageing Health (2008) 4(1), 69-74



If HITH can prevent delirium, what are the implications?

- What is associated with delirium?
 - Many bad outcomes
 - Death
 - Cognitive and functional decline
 - Nursing home placement



Meta-analysis protocol

Caplan GA, Sulaiman N, Mangin D, Aimonino
Ricauda N, Wilson A, Barclay L.

- Meta-analysis of RCTs of HITH where the HITH substituted for a sig. time in hospital as defined by $\geq 25\%$ LOS of control group, or at least 1 week, and where treatment had a restorative or curative intent, ie not palliative
- Adult patients
- 38 studies with data on mortality
- 17 additional studies

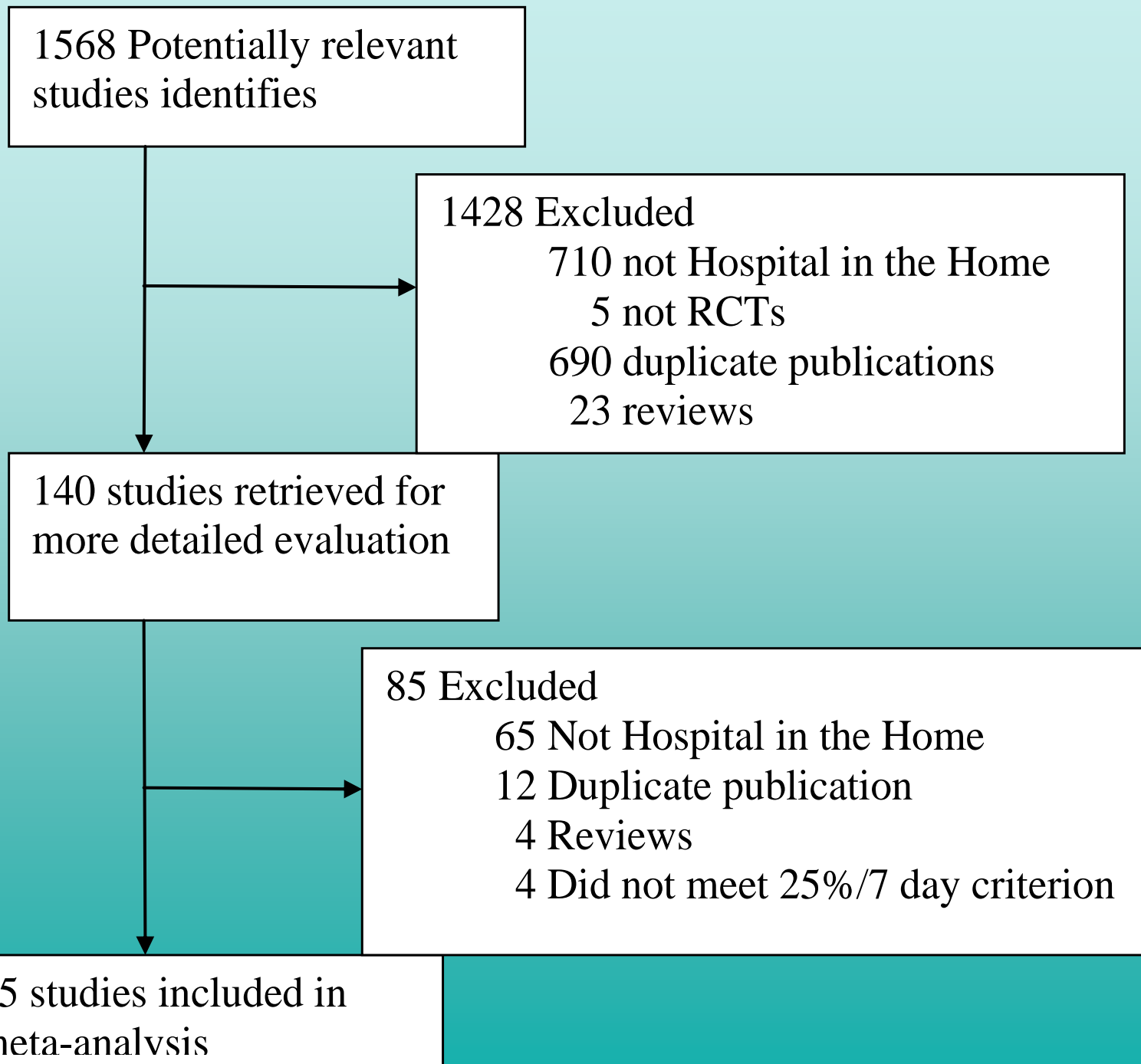


What are the effects of HITH?

- Mortality
- Readmission
- Satisfaction
 - Patient
 - Carer
- Cost
- Total 55 included studies



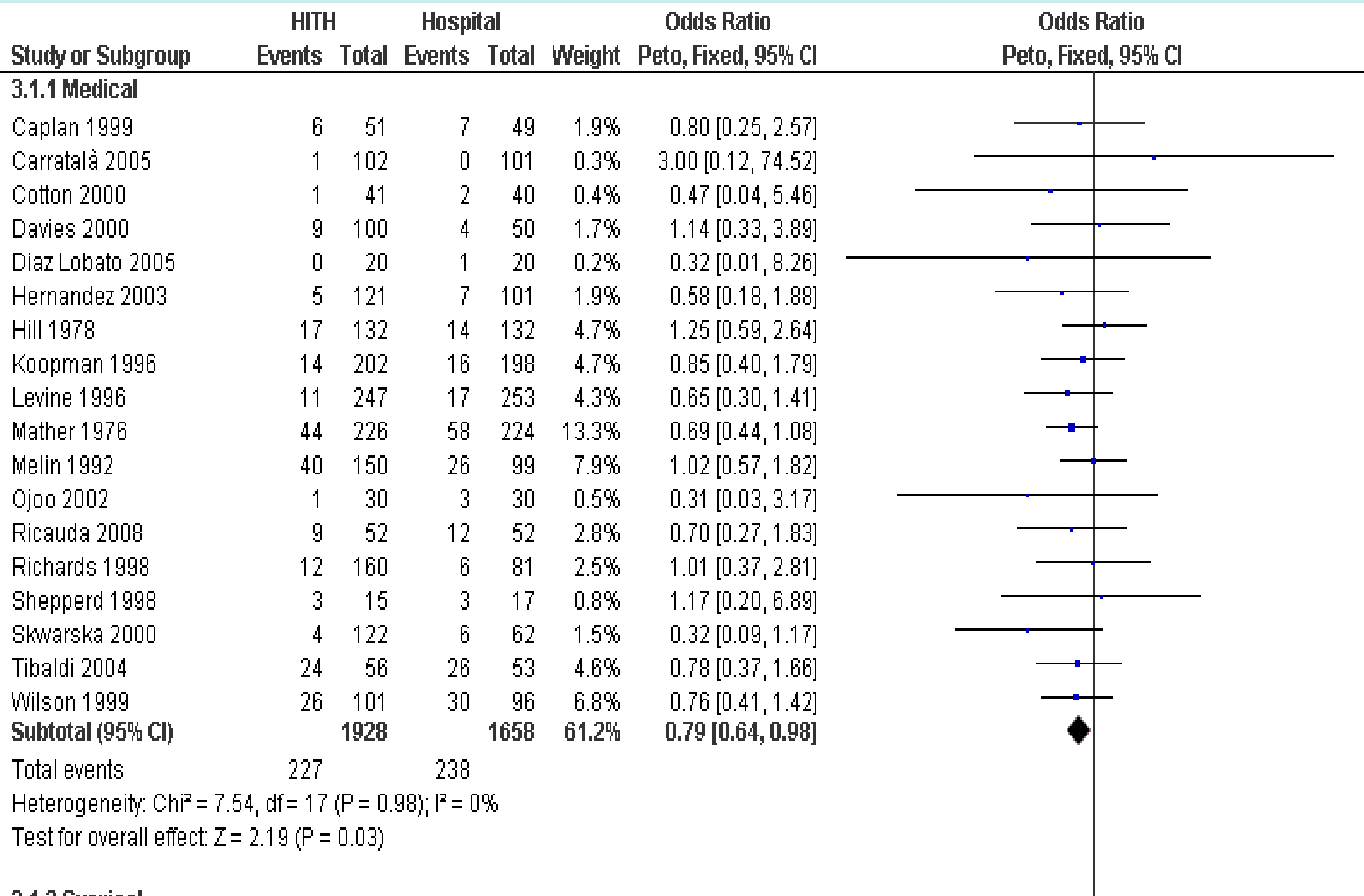
Study Selection



Mortality

- 38 randomised controlled trials
- 6318 patients
- Subdivided into
 - Medical
 - Rehabilitation
 - Surgical/cancer
 - Psychiatry



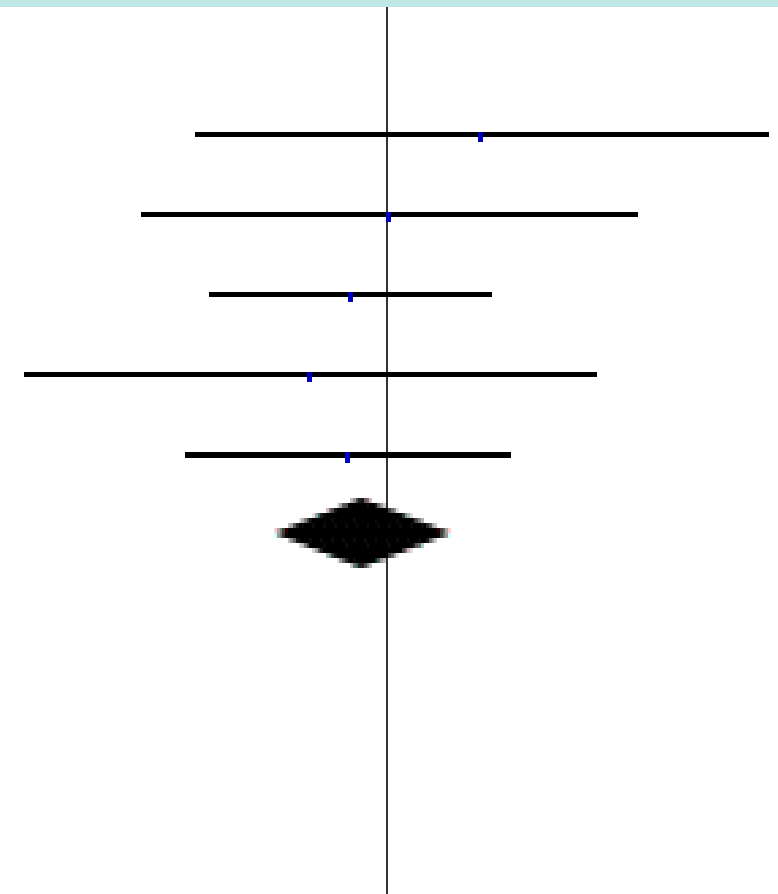


3.1.2 Surgical

Bonnema 1998	1	61	0	59	0.3%	2.95 [0.12, 73.88]
Bundred 1998	1	49	1	51	0.3%	1.04 [0.06, 17.13]
Crotty 2002	3	34	4	32	1.1%	0.68 [0.14, 3.29]
Shepperd 1998	0	37	1	49	0.3%	0.43 [0.02, 10.89]
Wells 2004	2	54	3	54	0.8%	0.65 [0.10, 4.08]
Subtotal (95% CI)		235		245	2.7%	0.78 [0.29, 2.10]
Total events	7		9			

Heterogeneity: $\text{Chi}^2 = 0.89$, $\text{df} = 4$ ($P = 0.93$); $I^2 = 0\%$

Test for overall effect: $Z = 0.49$ ($P = 0.62$)



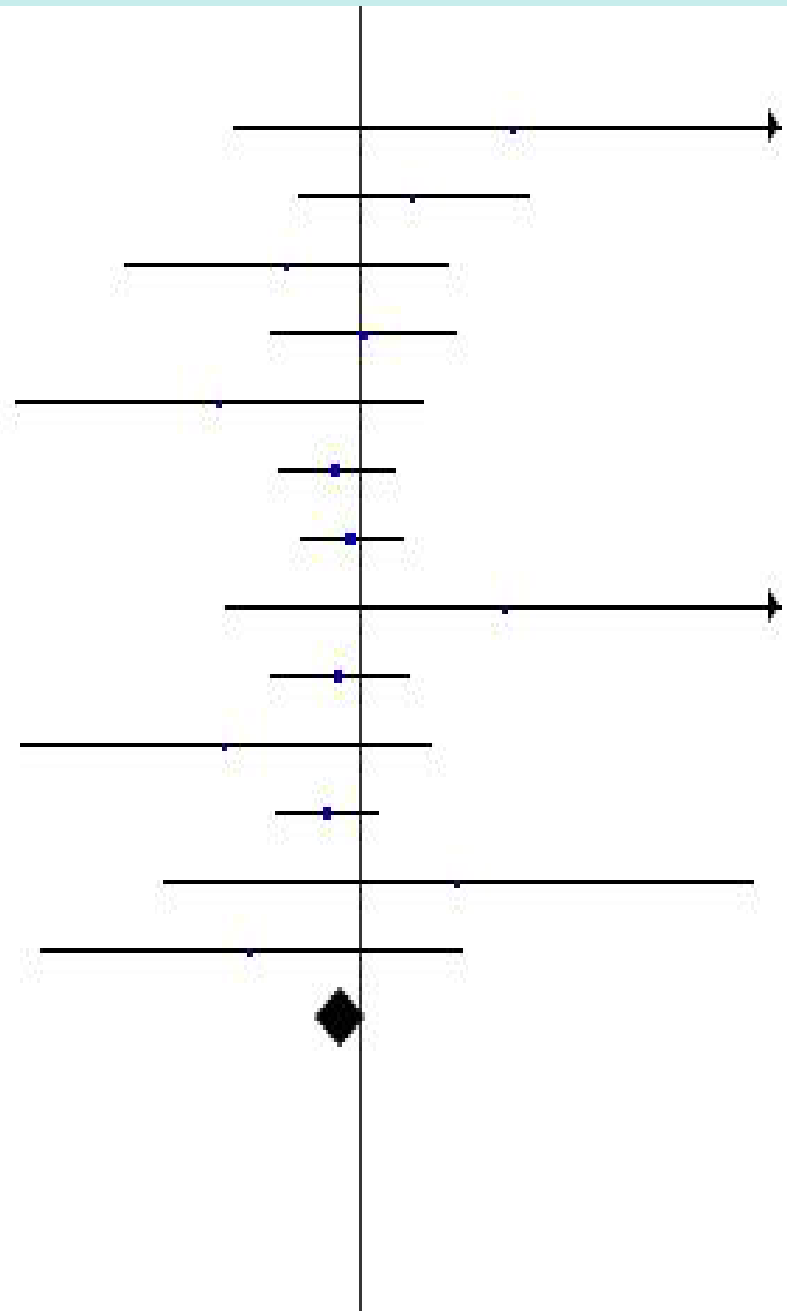
1.1.3 Rehabilitation studies

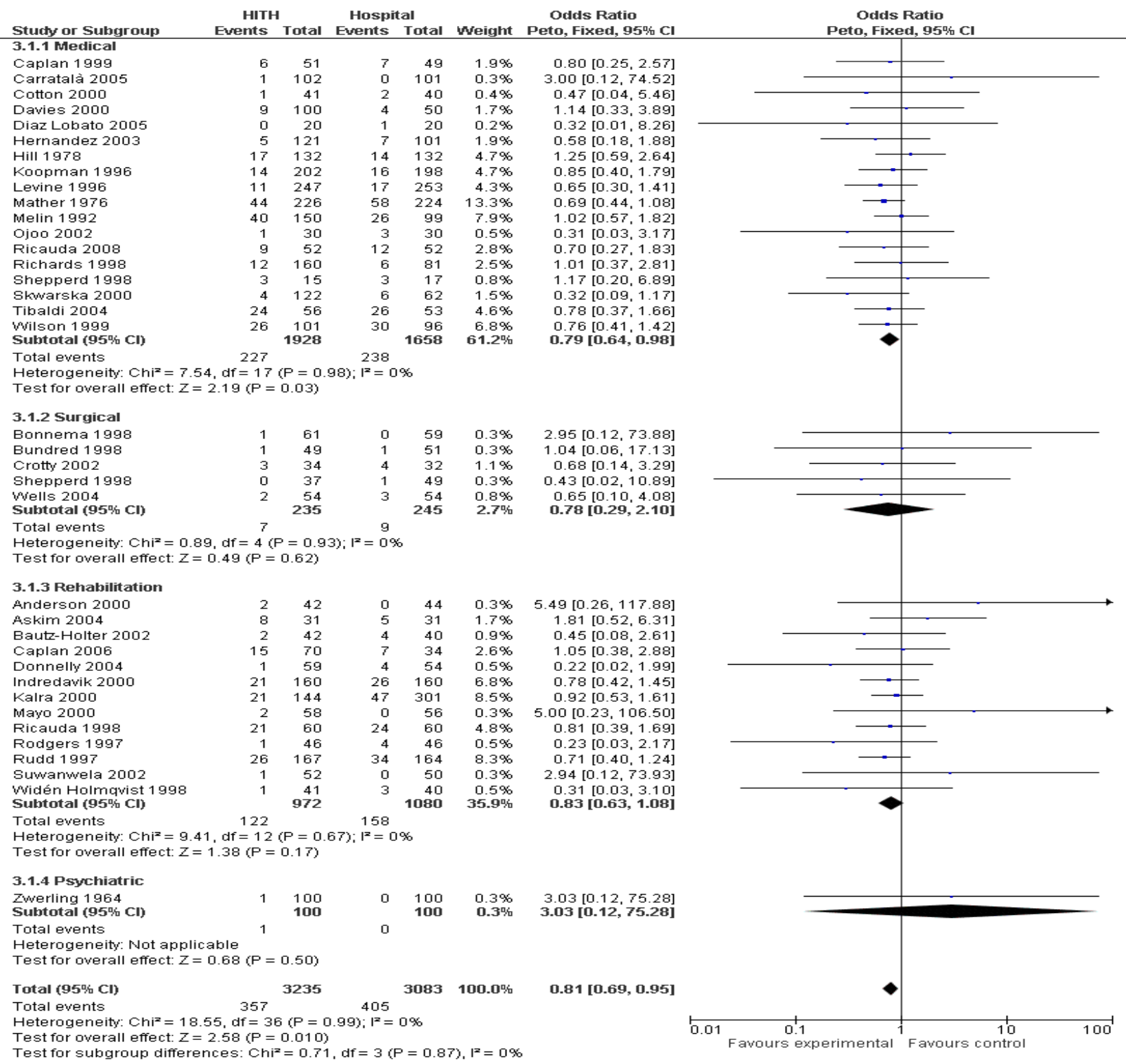
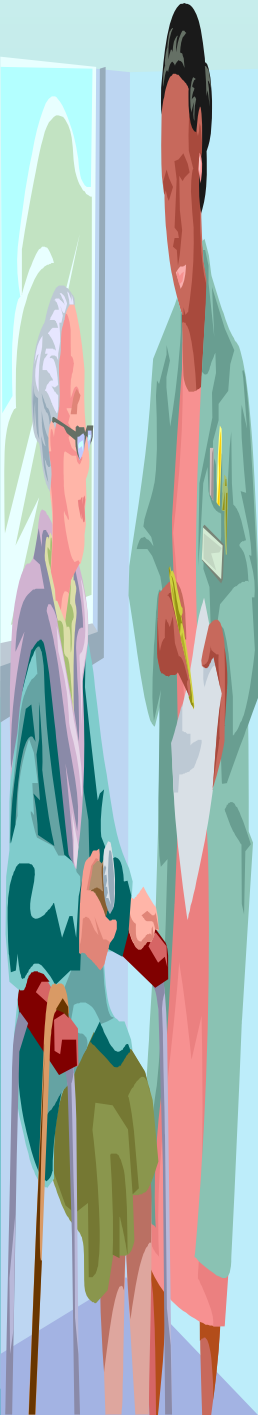
Anderson 2000	2	42	0	44	0.3%	5.49 [0.26, 117.88]
Askim 2004	8	31	5	31	1.6%	1.81 [0.52, 6.31]
Bautz-Holter 2002	2	42	4	40	0.8%	0.45 [0.08, 2.61]
Caplan 2006	15	70	7	34	2.5%	1.05 [0.38, 2.88]
Donnelly 2004	1	59	4	54	0.5%	0.22 [0.02, 1.99]
Indredavik 2000	21	160	26	160	6.6%	0.78 [0.42, 1.45]
Kalra 2000	21	144	47	301	8.2%	0.92 [0.53, 1.61]
Mayo 2000	2	58	0	56	0.3%	5.00 [0.23, 106.50]
Ricauda 1998	21	60	24	60	4.7%	0.81 [0.39, 1.69]
Rodgers 1997	1	46	4	46	0.5%	0.23 [0.03, 2.17]
Rudd 1997	26	167	34	164	8.1%	0.71 [0.40, 1.24]
Suwanwela 2002	1	52	0	50	0.2%	2.94 [0.12, 73.93]
Widén Holmqvist 1998	1	41	3	40	0.5%	0.31 [0.03, 3.10]
Subtotal (95% CI)		972		1080	34.9%	0.83 [0.63, 1.08]

Total events 122 158

Heterogeneity: $\text{Chi}^2 = 9.41$, $\text{df} = 12$ ($P = 0.67$); $I^2 = 0\%$

Test for overall effect: $Z = 1.38$ ($P = 0.17$)





Overall

- Mortality reduced by 19%; $p=0.01$
- From 13.14% to 11.04%
- Absolute Risk Reduction 2.10%
- Number needed to treat in HITH to save one life is 48



Comparison

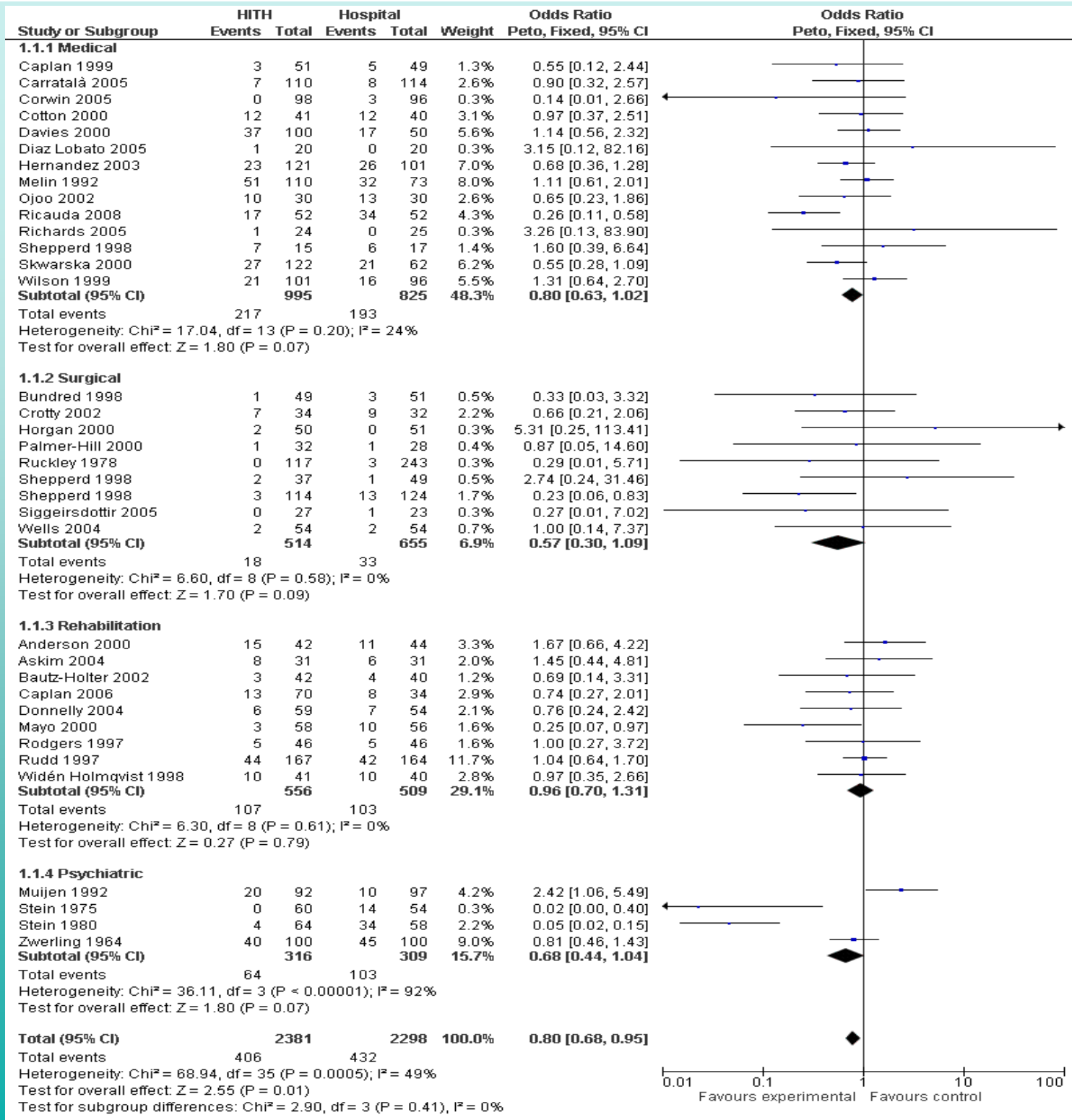
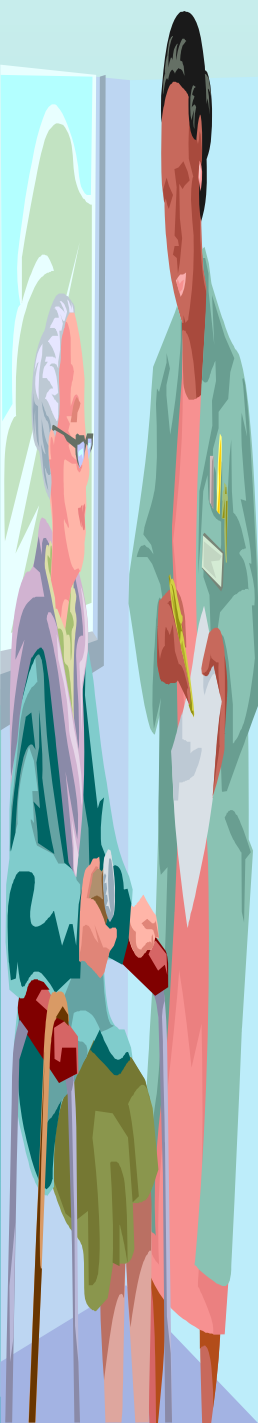
- Treatment of Hypertension in the elderly (Cochrane Review)
NNT for 5 yrs to prevent one death = 63
- Antiplatelet therapy for acute stroke (Cochrane Review)
NNT to prevent one death = 77



Readmission

- 34 RCTs 4856 patients
- Measured in number of patients readmitted. (Total number of readmissions is greater)
- An important measure of quality of care and a health outcome





Readmission

- Odds ratio 0.80 (95% CI 0.68-0.95)
- Relative Risk Reduction 20%, $p = 0.01$
- Reduced from 18.80% to 17.05%
- Number needed to treat in HITH to prevent one re-admission is 58



Costing

- 36 RCTs
- In 31 studies HITH was cheaper
- On average, HITH cost 76.2% of inpatient care



Satisfaction

- Patient satisfaction
 - 25 RCTs
 - All in favour of HITH
- Carer Satisfaction
 - 9 RCTs
 - 7 in favour of HITH
 - 1 in favour of in-hospital
 - 1 neutral



Conclusion

- Meta-analysis demonstrates treatment in HITH leads to
- 20% ↓ in deaths
- 21% ↓ in patients readmitted
- 24% ↓ in costs
- General ↑ in patient satisfaction



HITH in New South Wales

- Variable models exist across the state
 - Department based
 - Hospital model
 - Area Health Service model
 - Inpatient versus outpatient
 - Different patient groups
- Urban + rural
- Good communication between services, eg referrals, State-wide steering committee
- Innovation and research





- Society for clinicians (doctors, nurses and allied health) working in HITH
- Founded 2007
- Annual Conference
- www.hithsociety.org.au

4TH ANNUAL HITH SOCIETY AUSTRALASIA SCIENTIFIC CONFERENCE

Bringing it Home

Sydney, 17-18 Nov 2011



Thank you! Please come and visit.

