INSTITUTE FOR HEALTHCARE IMPROVEMENT

The Hospital at Night Project:

Reducing risks at our most vulnerable time of day

Carol Haraden
David Gozzard

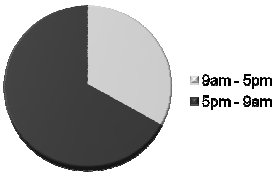
Objectives

- Discuss the interrelationship of the H@N project and clinical handoffs, competencies, and teamwork.
- Explore the impact of the timing of procedures during the day that have significant sequels at night.

Scope of the Talk

- Setting the Scene
- When and why are patients at risk?
  - —Circadian events
  - —Resource issues
- What is the Hospital at Night?
  - —Handoffs
  - —Competencies
- Summing up

The Patient's Day



Multiple Models of Care

Daytime
Evening
Nighttime
Weekends
Holidays

Circadian Events

- Myocardial Infarction more likely between 0600h and 1200h (the "ischemic hours")
- Neutropenic pyrexia 5x more likely at 2130h than 0930h
- Illnesses presenting "out of hours"
  - —Asthma
  - —Ulcers/heartburn
  - —Some types of arthritis

Junior doctors: We will win

Junior doctors say they are overworked and underpaid

Junior doctors have warned the government they will not back down in their fight for better pay and conditions.

Doctors suffering ill health

Doctors say their jobs are a major cause of stress

Doctors are suffering from high stress and poor health and are turning to drink and drugs to cope with their workload, a survey has found.

Drivers for change

- New Deal & EWT: reducing juniors hours and increasing costs. Out-of-hours duties affect day-time training time.
- Modernising Medical Careers: shortening training time, reducing trainee numbers and decreasing trainee involvement in service delivery.
- Population Demographics

Implications

- Traditional multiple tier arrangements of medical cover are no longer tenable
- The status quo is not an option
- Change is unavoidable:
  - —by design or default
- Hospital at Night model suggested

European Working Time Directive

- Limits working to ≤48h per week
- Doctors in Training 58h – cf. New Deal
- 48 hour working week by 2009
- 11h continuous rest in 24h period
- 24h continuous rest in 7 days
- 20 min rest break in periods > 6h
- Sleep on-site counts as work

Response to ND/EWTD

- Rota Redesign – move to shift working
- Fewer rotas, merging tiers
- Cross-cover
- Alternate arrangements for weekends

- But basically all these reduce the opportunity for doctors to see patients and develop competencies/skills

Overworked doctors 'like drunks'

Journal of Circadian Rhythms BioMed Central

Short paper **Open Access**

Shift work as an oxidative stressor

Akbar Sharifian*[1], Saeed Farahani[1], Parvin Pasalar[2], Marjan Gharavi[3] and Omid Aminian[3]

Effects of shift work

- Disruption of normal circadian rhythm
- Subjective and objective sleepiness
- Loss of rapid eye movement sleep after night shift
- Potassium, uric acid, glucose, cholesterol, and total lipids all increased during night work.
- Impaired performance with a trough at 3 am

Good evidence of increased risk of:

- Peptic ulcer disease
- Coronary heart disease
- Miscarriage, low birth weight, and preterm birth
- Injury during night shift, compared with morning shift

No evidence of effect on:

- Cancer risk
- Lifespan

A New Set of Problems

- Service Commitment taking precedence over Training and Education
- Night working has little educational value
- Poor continuity of care
- Loss of consultant "team" structure
- Reduction in medical staff available during office hours

INSTITUTE FOR HEALTHCARE IMPROVEMENT

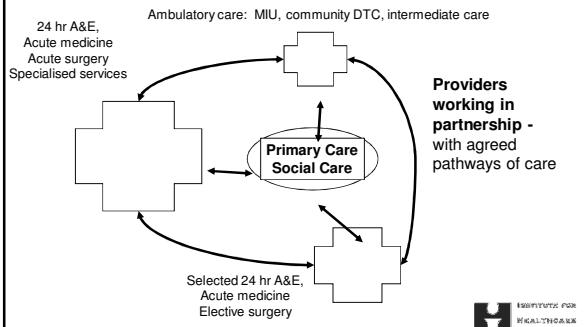
The Hospital at Night

"A Good Idea"

Key elements of the strategy I

- Minimise workload at night
  - Doing things differently
  - Drawing work into day
  - Effective demand management – e.g. through primary care out of hours
  - Service reconfiguration for some specialist services - supported by effective treat and transfer arrangements along agreed pathways of care

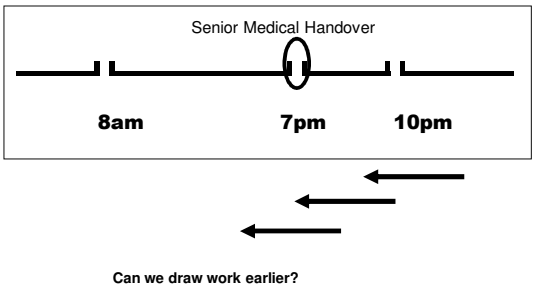
Exploiting the capacity of the "whole system" - will require agreed pathways of care



Key elements of the strategy II

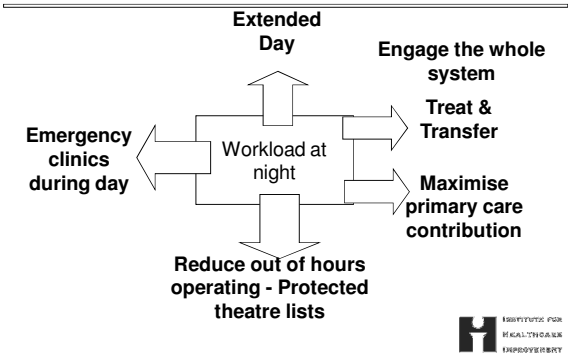
- Minimise medical workload at night
  - work within a multi-disciplinary, competency based team
  - up skill ward staff to minimise reliance upon the night team
  - reduce duplication
  - take away inappropriate tasks
  - effective bleep/call policies
  - better use of new technologies
    - mobile phones **not** bleeps
    - digital imaging
    - e-prescribing
    - electronic records

Our days have changed

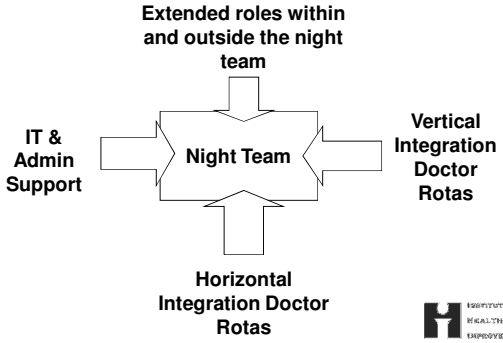


Can we draw work earlier?

Minimise Workload at Night



Minimise doctor input at night



Exploiting the capacity of the whole system

Exploiting the capacity of the whole system will be an issue of increasing importance to hospitals. There are several important elements to this.

Working closely with primary and social care
Effectively engaging with primary and social care will be a critical element in minimising the workload at night. The new arrangements for GP out of hours services provides an opportunity to integrate out of hours services more effectively with hospital based emergency care, and reduce demand on hospital services.

Establishing common networks of care
As the more specialist elements of service are increasingly likely to be offered on fewer sites, dedicated systems to support rapid transfer of patients between sites will be necessary.

The existing evidence

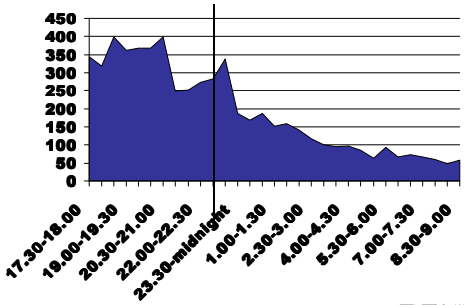
- Significant proportion of tasks undertaken by junior doctors (especially on the wards) could be undertaken by non medical staff
  - Canulation, administering drugs
  - Taking blood, ordering tests
  - Chasing notes and results

  And do **not** provide valuable training opportunities
- There is unnecessary repetition of tasks - multiple clerking
- Many tasks undertaken at night, could and should be undertaken during day
  - e.g. routine surgery & investigations

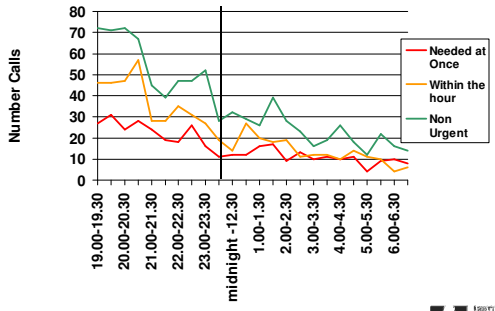
The evidence base - key messages

- Little OOH work is for life-threatening situations
- Reconsider models of staffing on new shift times.
- Attention to evening workload reduces night workload.
- General medical competencies are a core component of 24 hour on site support.
- Reduction in speciality team members is possible
- Night time operating has been reduced.
- Reduction in multiple clerking and better admin/IT support would reduce medical staff workload at night ***by up to a half.***

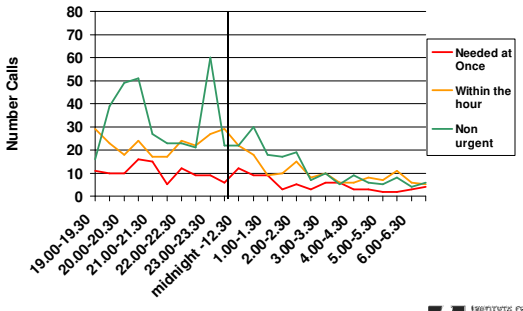
Activity levels fall after midnight but are high in the evening:
Current staffing levels don't reflect this



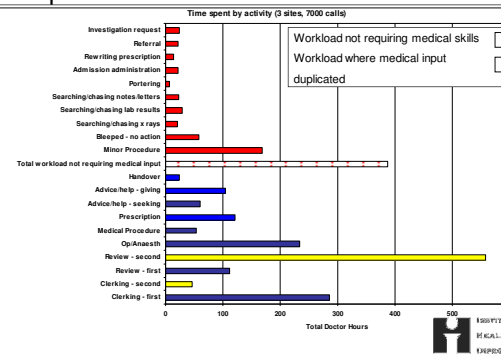
General medicine has the highest activity levels at night



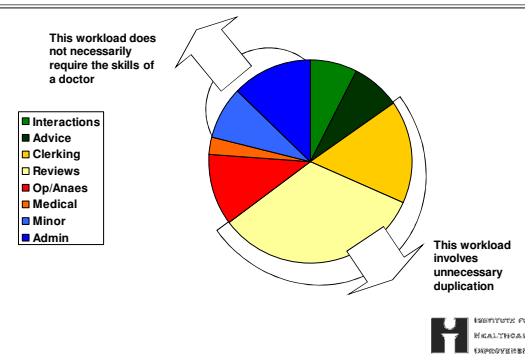
There is very little urgent general surgical activity



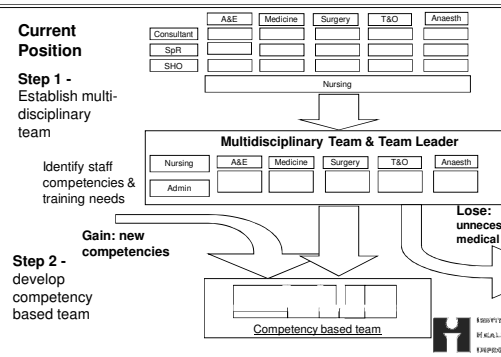
A significant proportion of doctor time is spent on non clinical and routine tasks



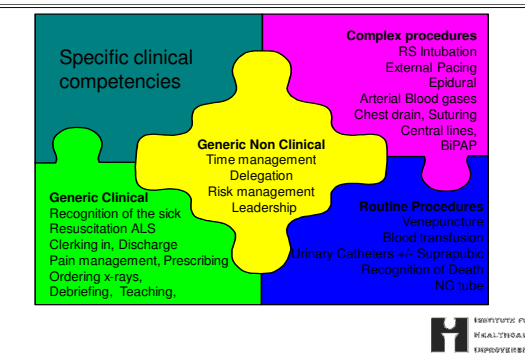
Significant proportion of the workload could be redistributed



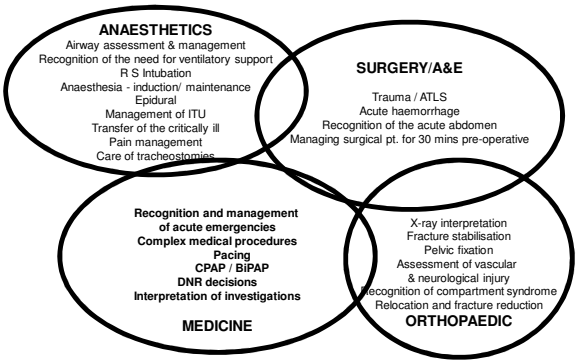
Developing and implementing the team



Hospital at Night requires generic competencies



Hospital at Night requires generic competencies



INSTITUTE FOR HEALTHCARE IMPROVEMENT

Handoffs / Handover

"Communicating…"

Shift Handover

- In industries which operate continuous processes, continuity is maintained across shifts changes via shift changeover
- Shift changeover typically includes:
  - A period of preparation by outgoing personnel
  - SHIFT HANDOVER (a period of communication)
  - Cross-checking of information by incoming personnel

The Goal of Shift Handover

The accurate,reliable communication of task-relevant information across shift changes, thereby ensuring continuity of safe and effective working

Health and Safety Executive

Communication Theory

Aids to Effective Communication	Implications for Effective Shift Handover Communication
Redundancy in a communication reduces the risk of erroneous transmission	Information should be repeated via more than one medium
Availability of feedback increases accuracy of information	Two-way feedback is essential at handover
Written communication is facilitated by design of documents which consider the information needs of the user	Documentation design should be based on specification of information needs

Disasters in Industry

- The Piper Alpha Disaster
- The Sellafield Beach Incident
- The Sutherland Fatality
- The Windscale Vitrification Plant Shield Door Incident

Shift Handover in Nursing Care

The goal of shift handover is to accurately communicate information so that safe nursing care can be provided from an adequate knowledge base

Problems identified include:

- Reports are routine rather than problem solving
- Missing, unnecessary, inaccurate information
- Failure to carry information forward over successive shifts

INSTITUTE FOR HEALTHCARE IMPROVEMENT

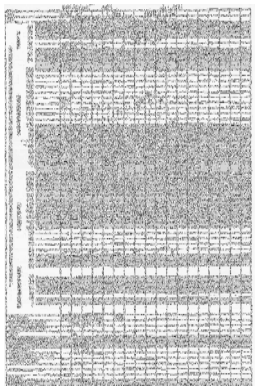
MEWS (Modified Early Warning System)

	3	2	1	0	1	2	3
Respiratory Rate per minute		Less than 8		9-14	15-20	21-29	More than 30
Heart Rate per minute		Less than 40	40-50	51-100	101-110	111-129	More than 129
Systolic Blood Pressure	Less than 70	71-80	81-100	101-199		More than 200	
Conscious level (AVPU)	**U**nresponsive	Responds to **P**ain	Responds to **V**oice	**A**lert	New agitation Confusion		
Temperature (°c)		Less than 35.0	35.1-36	36.1-38	38.1-38.5	More than 38.6	
Hourly Urine For 2 hours	Less than 10mls / hr	Less than 30mls / hr	Less than 45mls / hr				

EARLY WARNING SCORING SYSTEM FOR DETECTING ADULT PATIENTS WHO HAVE OR ARE DEVELOPING CRITICAL ILLNESS
IS THE SCORE FOR YOUR PATIENT 1-2? PERFORM 2 HOURLY OBSERVATIONS AND INFORM NURSE IN CHARGE
IS THE SCORE FOR YOUR PATIENT 3? PERFORM 1-2 HOURLY OBSERVATIONS AND INFORM NURSE IN CHARGE
*IF THE MEWS SCORE IS DETERIORATING : THE WARD S.H.O. OR DUTY DOCTOR **MUST** ATTEND*
IS THE SCORE FOR YOUR PATIENT 4 OR MORE? PERFORM OBSERVATIONS AT LEAST 1/2 HOURLY. ENSURE MEDICAL ADVICE IS SOUGHT AND CONTACT OUTREACH TEAM (see below)

HEALTHCARE IMPROVEMENT

MEWS Scoring at Conwy and Denbighshire



SBAR report to physician about a critical situation

S

Situation
I am calling about <patient name and location>.
The patient's code status is <code status>.
The problem I am calling about is _____.
I am afraid the patient is going to arrest.

I have just assessed the patient personally:

Vital signs are: Blood pressure ____/____, Pulse _____, Respiration_____ and temperature _____

I am concerned about the:
Blood pressure because it is over 200 or less than 100 or 30 mmHg below usual
Pulse because it is over 140 or less than 50
Respiration because it is less than 5 or over 40.
Temperature because it is less than 96 or over 104.

B

Background
The patient's mental status is:
Alert and oriented to person place and time.
Confused and cooperative or non-cooperative
Agitated or combative
Lethargic but conversant and able to swallow
Stuporous and not talking clearly and possibly not able to swallow
Comatose. Eyes closed. Not responding to stimulation.
The skin is:
Warm and dry
Pale
Mottled
Diaphoretic
Extremities are cold
Extremities are warm
The patient is not or is on oxygen.
The patient has been on _____ (l/min) or (%) oxygen for _____ minutes (hours)
The oximeter is reading _____ %
The oximeter does not detect a good pulse and is giving erratic readings.

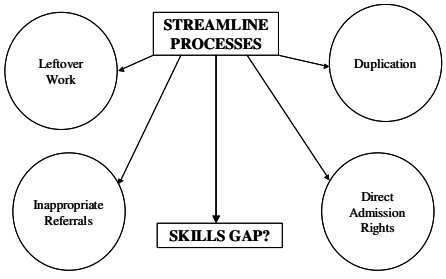
A

Assessment
This is what I think the problem is: <say what you think is the problem>
The problem seems to be cardiac infection neurologic respiratory ____
I am not sure what the problem is but the patient is deteriorating.
The patient seems to be unstable and may get worse, we need to do something.

R

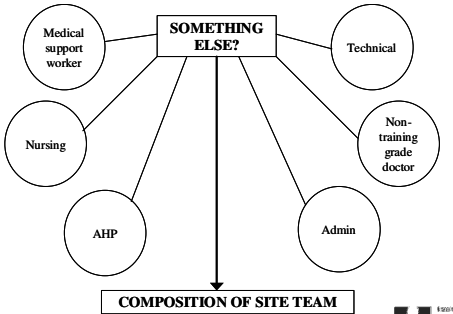
Recommendation
I suggest or request that you <say what you would like to see done>.
transfer the patient to critical care.
come to see the patient at this time.
Talk to the patient or family about code status.
Ask the on-call family practice resident to see the patient now.
Ask for a consultant to see the patient now.
Are any tests needed:
Do you need any tests like CXR, ABG, EKG, CBC, or BMP?
Others?
If a change in treatment is ordered then ask:
How often do you want vital signs?
How long to you expect this problem will last?
If the patient does not get better when would you want us to call again?

Identifying the Team III



INSTITUTE FOR HEALTHCARE IMPROVEMENT

Identifying the Team IV



INSTITUTE FOR HEALTHCARE IMPROVEMENT

3 Key Actions

- Establishment of service wide knowledge infrastructure to support service planning and design
- Use existing service knowledge and experience
- Bottom up approach to determine team model required on an individual site

INSTITUTE FOR HEALTHCARE IMPROVEMENT

Finally – the Hospital 24x7

"Fulfilling all care"

European Working Time Directive

- Present doctors hours = 58h
- By 2009 reduced to 48h
- To provide the same medical cover for patients using the present model my hospital would need an extra...

29 Doctors!

Implications for the NHS

- Not enough doctors
- Not enough money!
- Service redesign the only option
- "Hub and Spoke" delivery of service
- Extend the lessons of the H@N into the daylight hours
- Major culture change in the delivery of medical care