southern haemophilia network

Thrombosis UK

Hampshire Hospitals NHS
NHS Foundation Trust

Thromboprophylaxis in medical & surgical patients – for how long?
or… NICE HAT – but should we buy it?

Salisbury NHS
NHS Foundation Trust

VTE Exemplar Centres
Providing leadership in thrombosis care

WESSEX ACADEMIC HEALTH SCIENCE NETWORK

Correctly targetted thromboprophylaxis matters

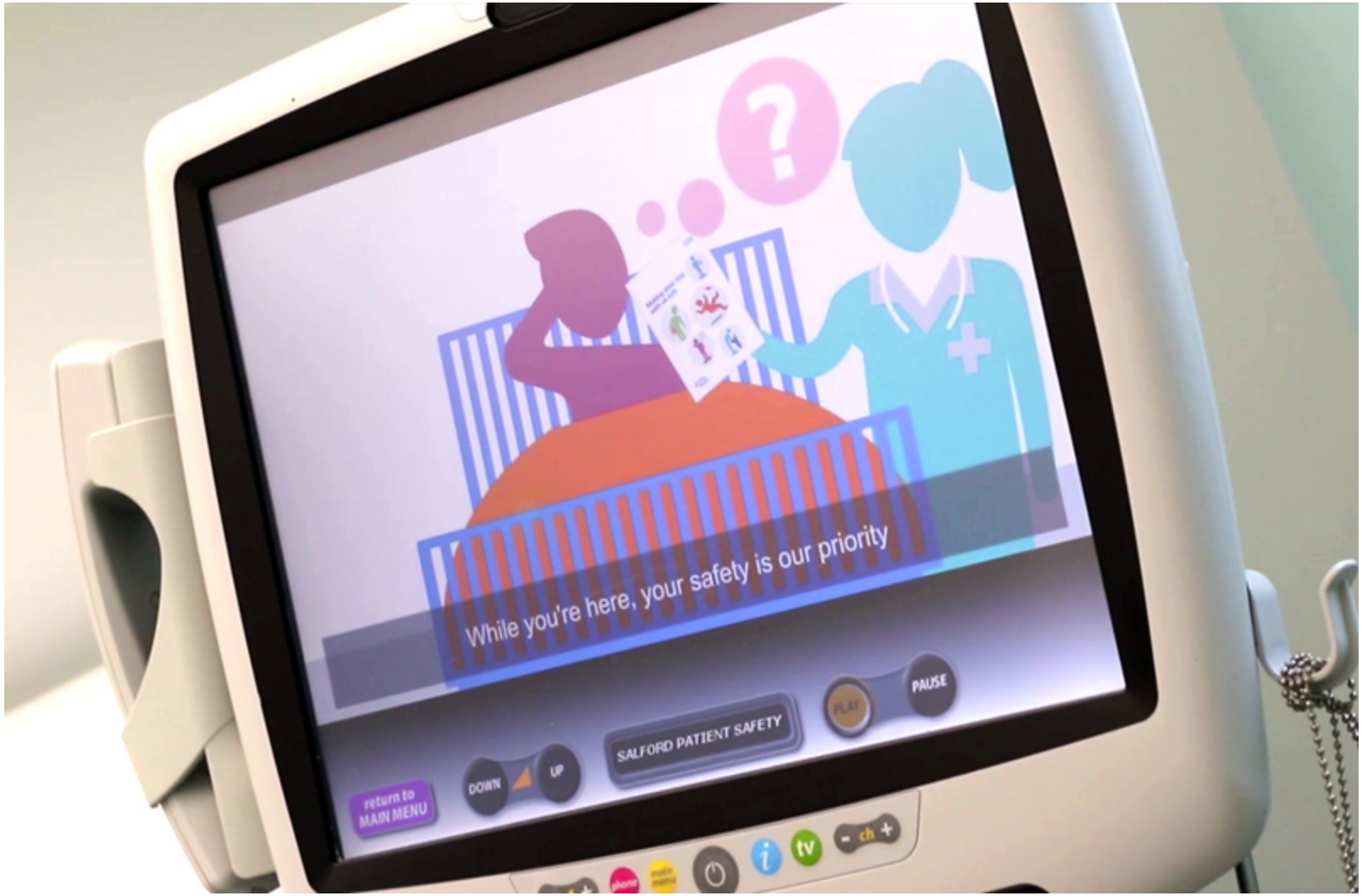
Nick was 57 years old & cared for his elderly mother

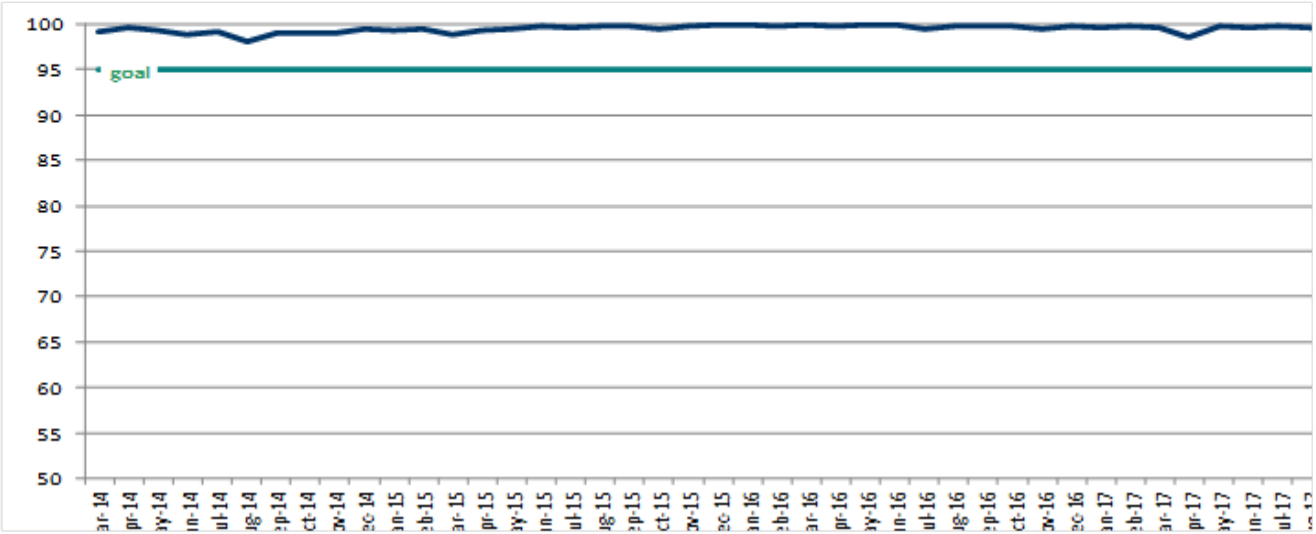
He had cerebral palsy and epilepsy

He died of a pulmonary embolism in hospital

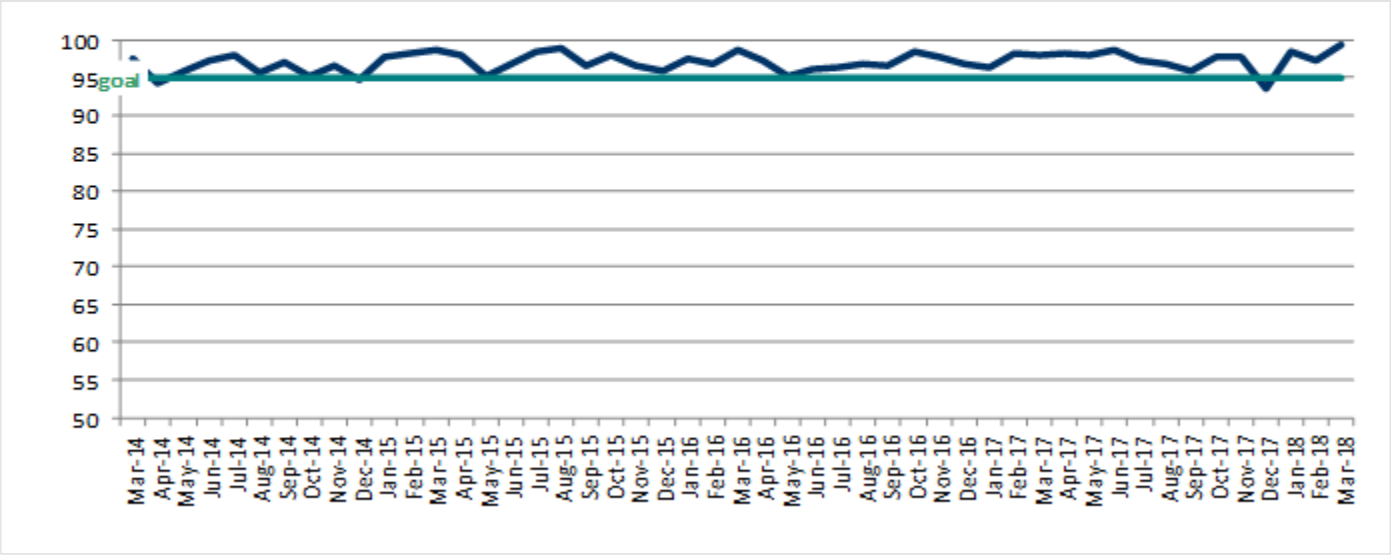
Nick's family want us to learn from his story

Informing patients of their risks matters





Salisbury
% with VTE risk
assessment

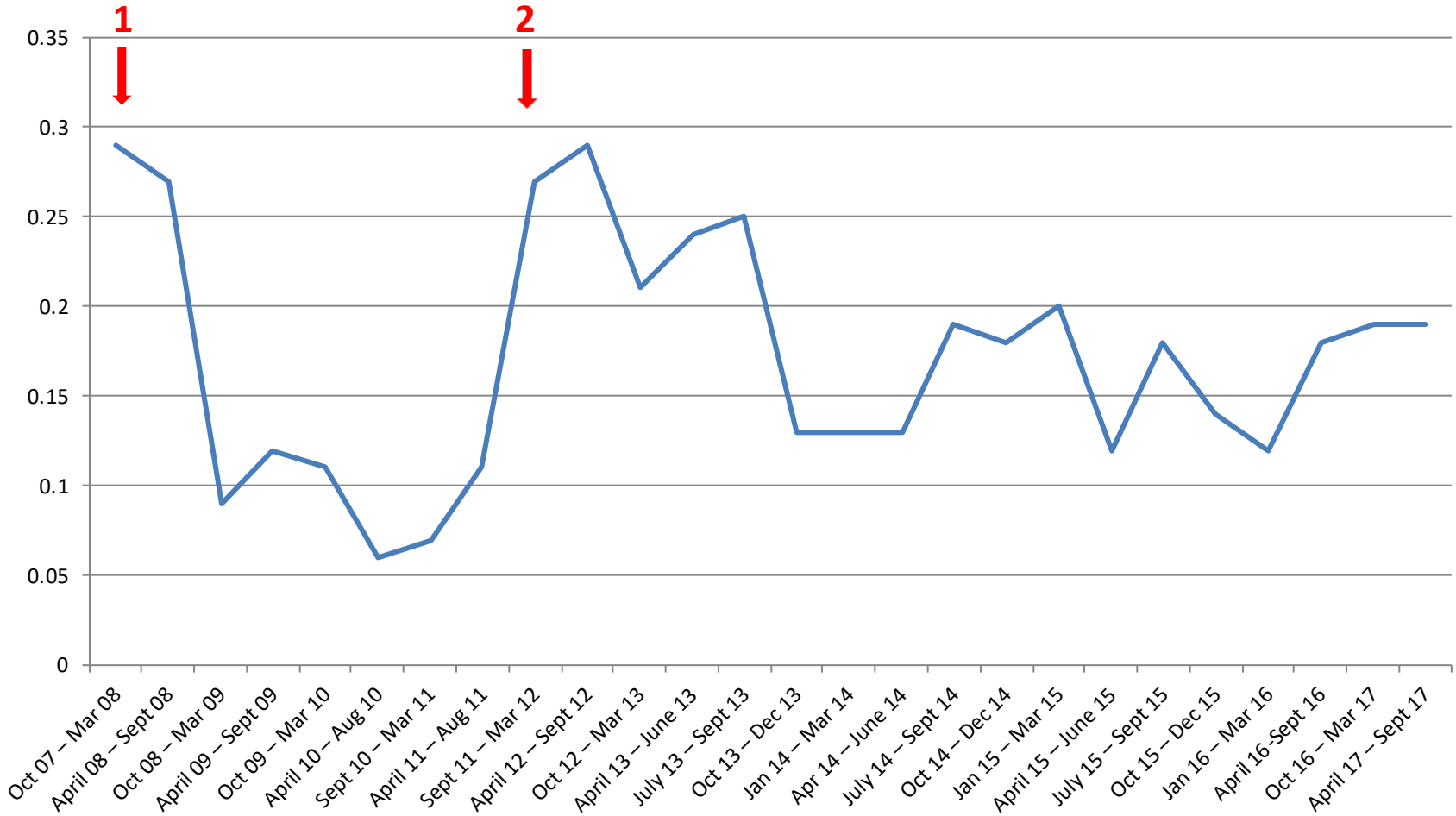


Salisbury
% with
appropriate
prophylaxis

If you deliver near complete compliance with VTE risk assessment / prophylaxis, will you prevent all VTE?

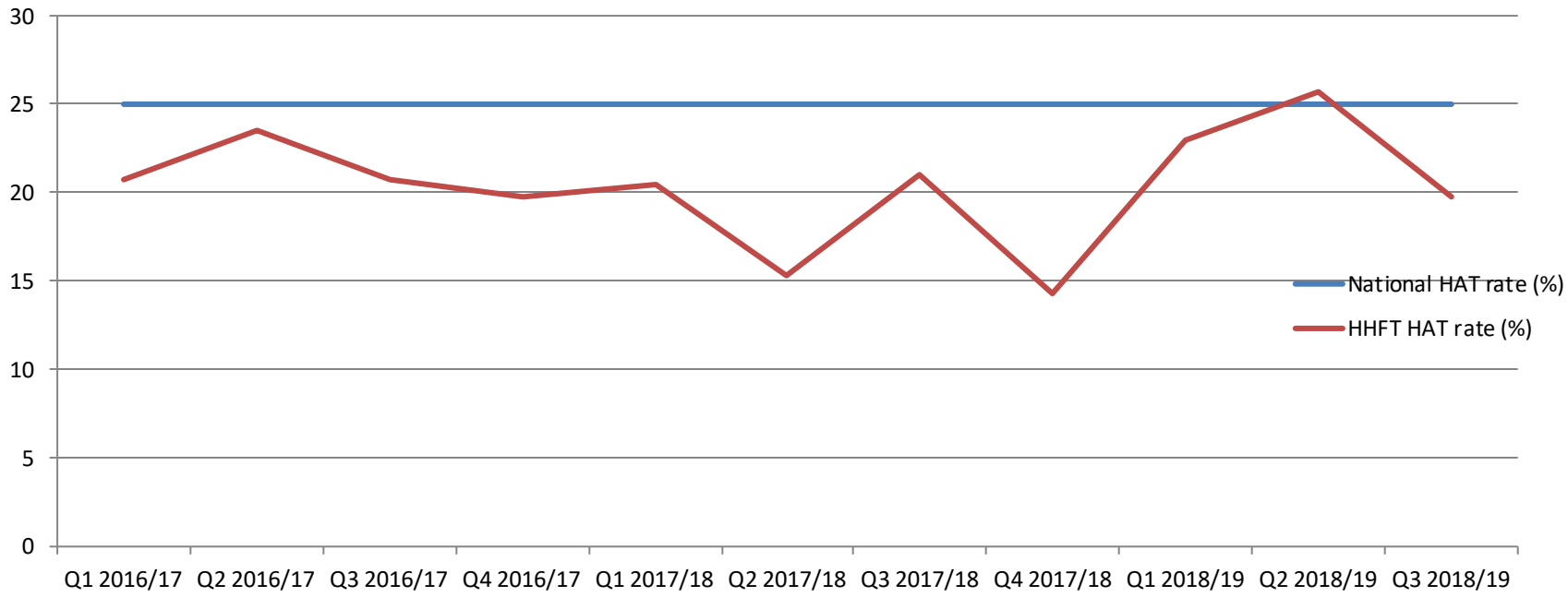
10 years of HAT data at Salisbury

(as a % of all admissions: **1**=6 weeks, **2**=12 weeks)



NB: HAT now 0.19% hospital admissions and 17.4% of VTE is HAT **with 43% = distal DVT**

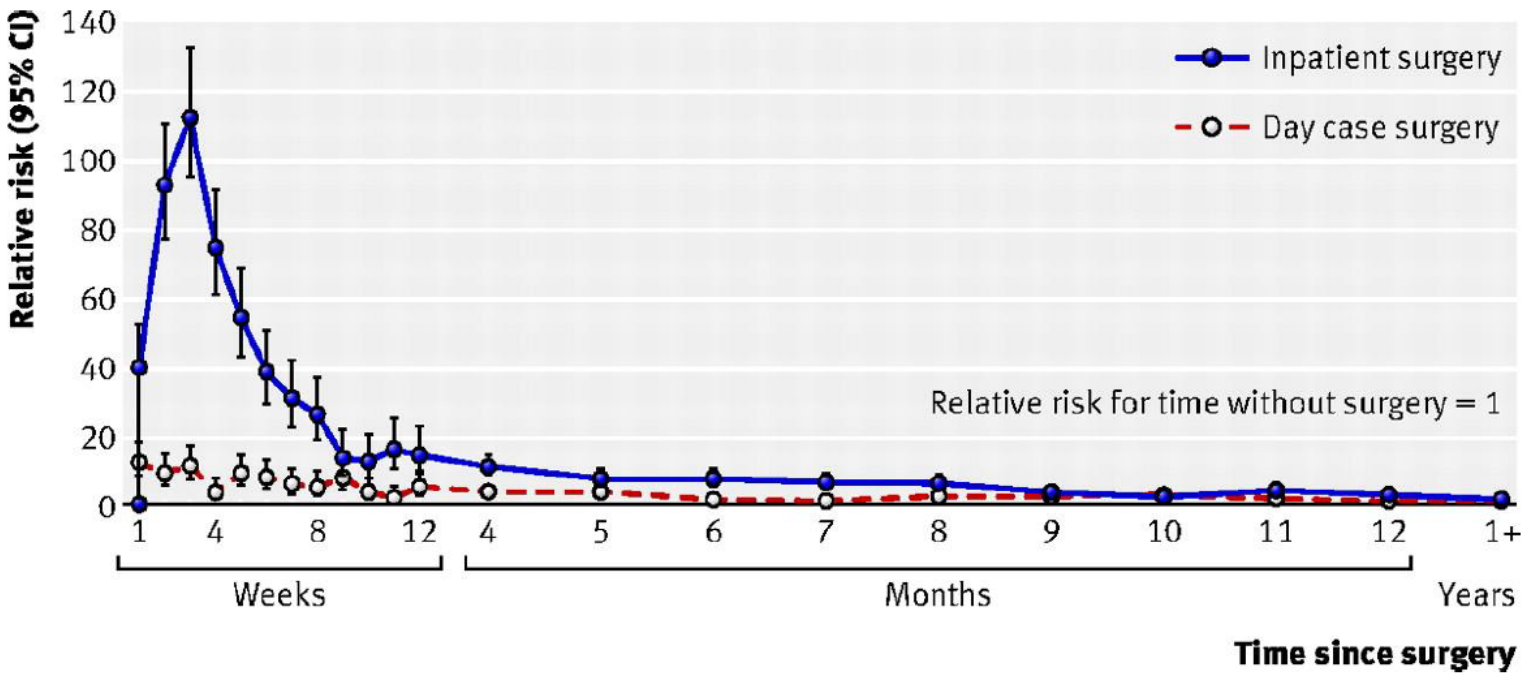
Hampshire HAT rates (approx 20% all VTE)



Specialty	DVT	PE	Total
Orthopaedics	7	5	12
Surgery	3	1	4
Medicine (includes elderly care and stroke)	6	3	9
Obstetrics & Gynaecology	2	1	3
Clinical Haematology	0	1	1
TOTAL	18	11	29

	No. of VTEs
Avoidable	0
Possibly avoidable	1
Unavoidable	28

Relative risk of VTE by time since surgery



thebmj

Siân Sweetland et al. BMJ 2009;339:bmj.b4583

Assess all medical patients to identify the risk of VTE and bleeding:

- as soon as possible after admission to hospital or by the time of the first consultant review
- **using a tool published** by a national UK body, professional network or peer-reviewed journal. The most commonly used risk assessment tool for medical patients is the Department of Health VTE risk assessment tool.

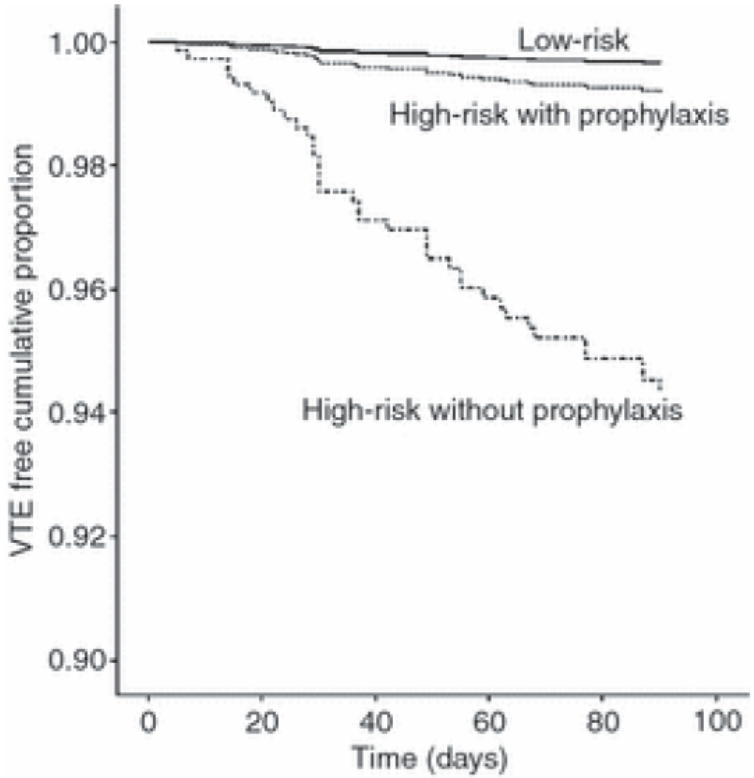
DoH tool: Never scientifically tested, may overestimate risk costing NHS £22 million per year!

Other options: Caprini Score (surgical) – IMPROVE, Padua or Caprini (non-surgical)

Thrombosis risk factors - Patient related	Thrombosis risk factors - Admission related
Active cancer or cancer treatment	Significantly reduced mobility for >3 days
Age>60	Hip or knee replacement
Dehydration	Hip fracture
Known thrombophilias	Total anaesthetic + surgical time > 90 minutes
Obesity (BMI>30kg/m2)	Surgery involving pelvis or lower limb with total anaesthetic + surgical time > 60 minutes
One or more significant medical comorbidities (eg. heart disease, metabolic, endocrine or respiratory pathologies, acute infectious disease, inflammatory conditions)	Acute surgical admission with inflammatory or intra-abdominal condition
Personal history or first-degree relative with a history of VTE	Critical care admission
Use of hormone replacement therapy	Surgery with significant reduction in mobility
Use of oestrogen-containing contraception	
Concurrent use of anticoagulants known to increase the risk of bleeding (such as warfarin with INR>2)	Lumbar puncture / spinal or epidural anaesthesia expected in the next 12 hours
Acute stroke	Lumbar puncture / spinal or epidural anaesthesia within the previous 4 hours
Thrombocytopenia (with platelets <75x109/l)	
Uncontrolled systolic hypertension (BP >230/120mmHg or higher)	
Untreated bleeding disorders (such as haemophilia or von Willebrand's disease)	

Currently 8% VTE exemplar centres are considering using an alternative tool, larger scale trials badly needed!

Padua Prediction score



	711	711	711	667	657	Low-risk
At risk:	186	181	173	163	158	High-risk with prophylaxis
	283	263	254	238	221	High-risk without prophylaxis

Barbar et al JTH 2010, 8(11): 2450-2457

Acutely ill medical patients

Offer pharmacological VTE prophylaxis for a minimum of 7 days to acutely ill medical patients whose risk of VTE outweighs their risk of bleeding:

Dubious value – not supported by 96% exemplar centres on survey in Oct 2018

SDH admitted 42,508 patients in 2017
Median LOS for medicine = 3.4 days (Surgery = 1.0 days)
78.8% received chemical thromboprophylaxis
(7 days would have cost >£180,000 & might have prevented 13 VTE events in 2016/17)

Landmark trials for LMWH prophylaxis in medical inpatients

Study	RRR	Thromboprophylaxis	Patients with VTE (%)
MEDENOX[1]	**63%**	Placebo	14.9
P<0.001		Enoxaparin 40 mg	5.5
PREVENT[2]	**49%**	Placebo	5.0
P=0.0015		Dalteparin 5000IU	2.8

[1]Samama MM *et al. N Engl J Med* 1999;341:793–800
[2]Leizorovicz A *et al. J Circulation* 2004;110:874–9

RRR = relative risk reduction

Medical population in landmark clinical trials

- MEDENOX: 6-14 days, inpatient only, **median LOS 7d**
- PREVENT: 14 days, **median LOS 13d**

- Projected stay at least 4 - 6 days
- > 40 years
- Congestive heart failure, acute respiratory failure
- *Or* significant other medical conditions other medical conditions (eg acute infection) PLUS
  - age > 75 yrs
  - cancer
  - previous VTE
  - obesity

Abdominal surgery

Add pharmacological VTE prophylaxis for a minimum of 7 days for people undergoing abdominal surgery whose risk of VTE outweighs their risk of bleeding, taking into account individual patient factors and according to

Dubious value – not supported by 95% exemplar centres on survey in Oct 2018

Consider extending pharmacological VTE prophylaxis to 28 days postoperatively for people who have had major cancer surgery in the abdomen.

Surgical trials

- Majority of trials in general surgical patients < 7 days (Collins et al 1988)

- In the largest trial, requirement for admission >7 days was an inclusion criteria (Kakkar et al 1975)

People with cancer

Do not offer VTE prophylaxis to people with cancer who are receiving treatments and who are mobile unless they are also risk of VTE because of something other than the cancer.

Consider pharmacological VTE prophylaxis for people with myeloma who are receiving chemotherapy with thalidomide, pomalidomide or lenalidomide with steroids.

Sensible – but in practice many clots occur on prophylaxis in myeloma

Consider VTE for people with pancreatic cancer who are receiving chemotherapy.

If giving VTE prophylaxis to people with cancer, continue for as long as they are receiving chemotherapy.

Palliative care

Consider pharmacological VTE prophylaxis for people who are having palliative care. Take into account temporary increases in thrombotic risk factors, risk of bleeding, likely life expectancy and the views of the person and their family members or carers (as appropriate):

Pragmatic

- Use LMWH as first-line treatment.
- If LMWH is contraindicated, use fondaparinux sodium.

Do not offer VTE prophylaxis to people in the last days of life.

Tip: “if you wouldn’t treat a clot, don’t scan and don’t give prophylaxis”

Fragility fractures of the pelvis, hip and proximal femur

Offer VTE prophylaxis for a month to people with fragility fractures of the pelvis, hip or proximal femur if the risk of VTE outweighs the risk of bleeding. Choose either:

- LMWH, starting 6–12 hours after surgery or
- fondaparinux sodium, starting 6 hours after surgery,

providing there is low risk of bleeding.

OK – but frail people bleed +++ too

Issue of frailty / falls and anticoagulation – 54 CT heads, only 4 ICH – all on warfarin. We do **LOTS** of CT heads.

Elective hip replacement

Offer VTE prophylaxis to people undergoing elective hip replacement surgery whose risk of VTE outweighs their risk of bleeding. Choose any one of:

- LMWH for 10 days followed by aspirin (75 or 150 mg) for a further 28 days.
- LMWH for 28 days combined with anti-embolism stockings (until discharge).
- Rivaroxaban

Elective knee replacement

Offer VTE prophylaxis to people
knee replacement surgery whose
their risk of bleeding. Choose an

- Aspirin (75 or 150 mg) for 14 d
- LMWH for 14 days combined w

stockings until discharge.

- Rivaroxaban

Aspirin alone TKR – NICE 2018

NICE network meta-analysis, rank order of interventions

Figure 834: Rank order for interventions based on the relative risk of experiencing DVT

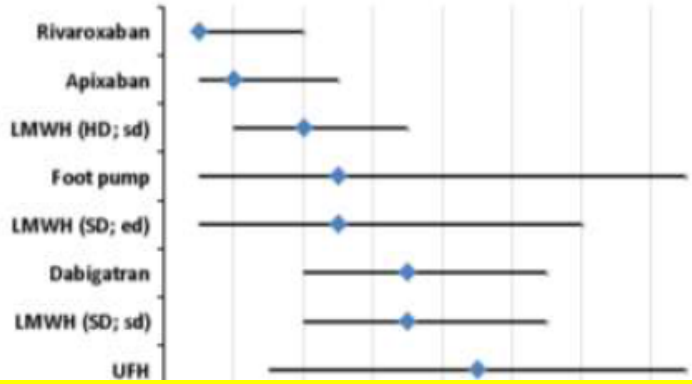


Figure 836: Rank order for interventions based the relative risk of experiencing PE

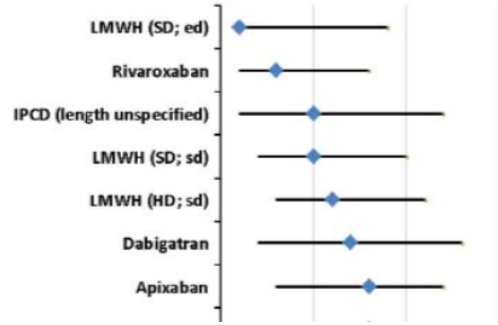
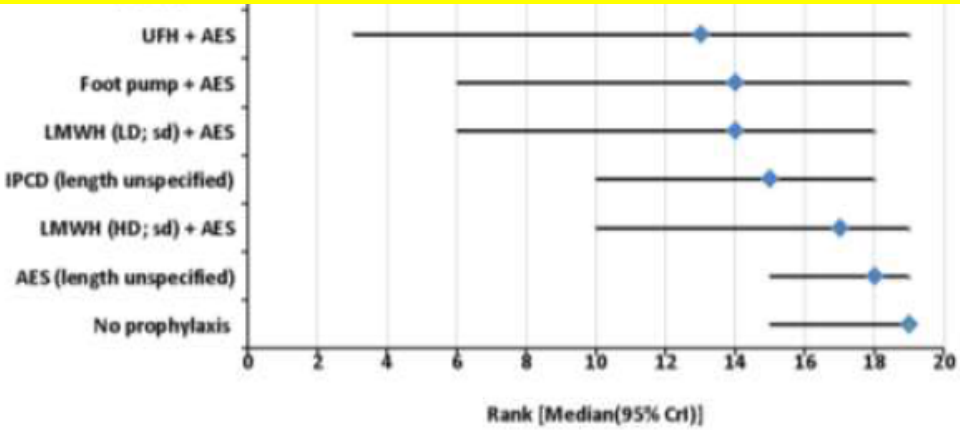
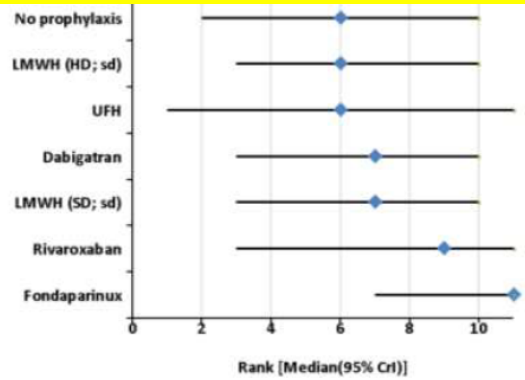


Figure 838: Rank order for interventions based on the relative risk of experiencing major bleeding

"The inclusion of aspirin … was primarily based on the results from the **economic model**"





NICE CG89 2018

There may be more evidence out there we are ignoring…

13472 primary THR and TKRs in a joint registry

Only deemed high risk if higher risk factors (exclude age alone & BMI 30-35) – this led to 86% being lower risk

23%	aspirin / clopidogrel
77%	mechanical prophylaxis only
0.48/0.42 %	PE/DVT

No statistical difference in HAT between those given chemical prophylaxis and those not

******Unpublished (as yet) retrospective data – but low HAT matches RCA findings…***

Pregnant women and women who gave birth or had a miscarriage or termination of pregnancy in the past 6 weeks
Consider LMWH for all women who are admitted to hospital or a midwife-led unit if they are pregnant or gave birth, had a miscarriage or had a termination of pregnancy in the past 6 weeks, and whose risk of VTE outweighs their risk of bleeding.

SDH had 216 admissions in this group (miscarriage / TOP) in 2016/17. No thromboprophylaxis was given. No patients developed thrombosis.

Vegetarians / Vegans

Be aware that heparins are of animal origin and this may be of concern to some people. Discuss the alternatives with people who have concerns about using animal products, after discussing their suitability, advantages and disadvantages with the person.

Bigger picture?

- 5% population are vegan / vegetarian
- In 2013, of the 100 most commonly prescribed drugs by GPs, 74 contained lactose, gelatine or magnesium stearate potentially animal derived (21% didn'yt state animal products, 47% definitely had them)

Tatham & Patel BMJ Feb 2014

Jumping on the bandwagon…more guidance reiterating NICE89

http://m.clinmed.rcpjournal.org/content/19/2/100

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Reducing the risk of hospital-acquired deep vein thrombosis or pulmonary embolism in medical inpatients

Authors

Introduction

Venous thromboembolism (VTE), consisting of deep venous thrombosis (DVT) and pulmonary embolism (PE), is a common, potentially preventable and sometimes fatal illness complicating hospitalisation. Although the case incidence rate is higher in surgical patients, medical patients are probably responsible for up to 75% of hospital-acquired VTE defined as VTE occurring within 90 days of a period of hospitalisation. The Department of Health in 2010 mandated VTE risk assessment for all hospital admissions, and the implementation of this was initially assisted through a national CQUIN (Commissioning for Quality and Innovation). As a consequence, it is likely that many more medical admissions now receive prophylaxis than in the past, although data on the outcome of risk assessment and the use of chemical thromboprophylaxis in general medical inpatients in the NHS is not collected or published.

The treatment of clinically diagnosed VTE is well established, with increasing use of outpatient management. [1] By contrast, there is uncertainty around which medical patients should receive VTE prophylaxis, with which agent, at what dosage and for how long. The recent National Institute for Health and Care Excellence (NICE) guideline update NG89 [2] reviewed the evidence and made recommendations for all inpatients over 16. This concise guideline focuses on recommendations relevant to medical inpatients.

Scope and purpose

The NICE guideline *Venous thromboembolism in over 16s: reducing the risk of hospital-acquired deep vein thrombosis or pulmonary embolism* (NG89) was published in March 2018. [2] There is also an associated quality standard (QS3) updated at the same time from the previous 2010 version. [3]

NG89 concentrates on the areas where advice, emphasis or evidence has changed since the previous guidance CG92. [4] It aims to help healthcare professionals identify people most at risk, and describes treatments and interventions that can be used to reduce the risk of VTE. It particularly stresses that risk assessment should be universal and that this underpins decision making about prophylaxis. The latest guidance also highlights the areas where the knowledge base is inadequate and where further research is urgently needed.

Recommendations

Risk assessment

Assess all medical patients to identify the risk of VTE and bleeding:

- *as soon as possible after admission to hospital or by the time of the first consultant review*
- *using a tool published by a national UK body, professional network or peer-reviewed journal. The most commonly used risk assessment tool for medical patients is the Department of Health VTE risk assessment tool.*

Advice to VTE exemplars on NG89…

Main Changes

- The guideline now incorporates patients over 16 years of age.
- Risk assessment can be with 'tool published by a national UK body, professional network or peer-reviewed journal'.
- All medical patients & most surgical patients requiring pharmacological thromboprophylaxis should have it for a minimum of 7 days.
- Pharmacological prophylaxis should be started within 14 hours of admission.
- Risk assessment should occur as soon as possible or by the first consultant review.
- Reassessment should take place at consultant review or if clinical condition changes.
- All acute psychiatric patients to be risk assessed and considered for LMWH.
- Elective THR & TKR can have aspirin as an alternative to LMWH/DOAC.
- UFH or LMWH can be used in renal impairment, using a reduced dose.

"All medical patients & most surgical patients requiring pharmacological thromboprophylaxis should have it for a minimum of 7 days"

Our NHS patients

- Threshold
  - Lower threshold for considering patients ‘at risk’ of VTE than clinical trials
- LOS
  - Median LOS following emergency admission is 3 days (after exclusion of admissions <24hours) ***(NHS Digital 2018)***
  - 80% of elective surgery performed as day surgery in 2013 ***(Appleby 2015)***

Annual additional cost to NHS

- >100,000 consecutive admissions
- % of patients with LOS <7 days recommended LMWH
  - medical 61%, surgical 57% (day case surgery excluded)

- Drug cost > £35 million
- District nurse (30% patients) > £185 million
- Diversion of scare resources
  - Nursing time to train patients
  - District nurses
  - Dispensing time

Lester et al, accepted for publication BJHaem

Thromboprophylaxis in medical & surgical patients – for how long?
or… NICE HAT – but should we buy it?

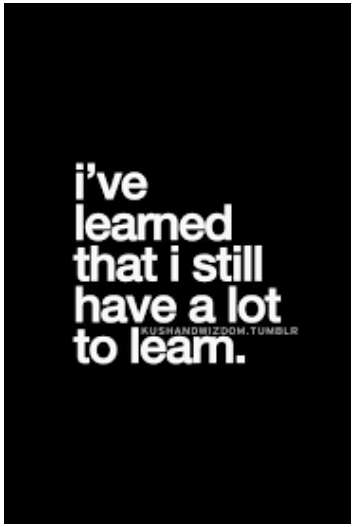
Limited evidence that longer is better & it's expensive!
Probably not…. (but do lose the stockings!)

Acknowledgements

Nicola McQuaid & Thrombosis Committee at Salisbury Hospital

Tracy May, Niamh Cole & Thrombosis Committee at Hampshire Hospitals

Susie Shapiro at Oxford University Hospitals

VTE Exemplars

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