The global impact of thrombosis

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Medical Director of Thrombosis UK
@bhwords
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No conflicts of interest
Aims of this lecture

• To emphasize the underappreciated global impact of thrombosis
• Reducing the burden: preventing thrombosis
The Global Burden of Disease
- estimated by WHO biannually 55 million deaths a year
The Global Burden of Disease

Global burden of disease measures burden of disease using the disability-adjusted-life-year (DALY). This time-based measure combines years of life lost due to premature mortality and years of life lost due to time lived in states of less than full health.

55 million deaths a year

- 12 million “cardiovascular”
- 10 million stroke
The Global Burden of Disease

Global burden of disease measures burden of disease using the disability-adjusted-life-year (DALY). This time-based measure combines years of life lost due to premature mortality and years of life lost due to time lived in states of less than full health.

- 55 million deaths a year
- 12 million “cardiovascular”
- 10 million stroke

THROMBOSIS CAUSES ¼ OF GLOBAL DEATHS
The Global Burden of Disease - estimated by WHO biannually

- No record of VTE deaths!

Global burden of disease
The WHO global burden of disease (GBD) measures burden of disease using the disability-adjusted-life-year (DALY). This time-based measure combines years of life lost due to premature mortality and years of life lost due to time lived in states of less than full health. The DALY metric was developed in the original GBD 1990 study to assess the burden of disease consistently across diseases, risk factors and regions.

Thrombosis: a major contributor to the global disease burden
ISTH Steering Committee for World Thrombosis Day Review Article Open Access

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https://doi.org/10.1111/jth.12698
VTE is a leading cause of death worldwide

VTE is estimated to cause >500,000 deaths in Europe every year\(^1\)

An estimated 300,000 VTE-related deaths occur in the US each year\(^2\)

VTE is estimated to cause at least 3 million deaths a year worldwide\(^3\)

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Venous thromboembolism (VTE)

- 3rd most common cardiovascular disease after MI & stroke
- VTE rates are >100 per 100,000 population annually
- 60% are hospital-acquired (VTE occurring in hospital & for 90 days post discharge)
The VTE risk of being an in-patient

More medical patients (70% of admissions) affected than surgical…

Internal medicine
General surgery
Acute ischaemic stroke
Orthopaedic surgery

DVT risk without any prevention  0%  17%  25%  50%

Geerts WH. Chest 2001;119:132–75S.
The evidence for thromboprophylaxis…

Reduced fatal PE rates with heparin thromboprophylaxis

Surgical Groups: General  Orthopaedic  General  General  Orthopaedic

Kakkar 1975  Clagett 1988  Collins 1988

Incidence of fatal PE (%)

Postoperative risk of VTE in middle aged women: prospective cohort study
Sweetland et al. BMJ 2009; 339: 583

1 in 140 middle aged women (55+/−4.6) will be admitted with a VTE 12 weeks post-surgery

1 in 45 after hip/knee surgery

1 in 85 after cancer surgery

<table>
<thead>
<tr>
<th>Relative risk</th>
<th>0-6 weeks</th>
<th>6-12 weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-patient</td>
<td>70x</td>
<td>20x</td>
</tr>
<tr>
<td>Day patient</td>
<td>10x</td>
<td>5x</td>
</tr>
</tbody>
</table>
Failure of thromboprophylaxis is a global problem


358 hospitals in 32 countries were audited

68,000 patients assessed against ACCP guidelines:
• 35,000 (51%) at risk of VTE
• But of those at risk only 58% of the surgical and 40% of the medical patients received thromboprophylaxis
THE SIZE OF THE UK VTE PROBLEM IN 2004

• Estimated 60,000 VTE deaths in the UK. At least 32,000 due to hospital acquired VTE of which 25,000 are preventable

• More deaths from hospital acquired VTE than breast cancer, HIV & road traffic accidents combined

• Also more deaths than hospital acquired infection (MRSA & *C. difficile*, peaked at 10,000)
Founded in 2002 by Beverley Hunt and Alan Moody
“All patients, both medical and surgical, who are admitted to hospital should undergo a risk assessment for venous thrombosis”

(House of Commons Health Committee The Prevention of Venous Thromboembolism in Hospitalised Patients Second Report of Session 2004–05)
“We don’t see it anymore, a disease of the past”  
Anon consultant

BUT VTE is a “silent disease”
- 80% of DVT subclinical
- <50% of pulmonary emboli (PE) detected prior to death
- 10% of hospital deaths due to PE

Post surgery the average VTE events occur:
- DVT on day 7
- PE on day 21

Warwick, D (2009)
Consistent investment and a coherent strategy leads to Department of Health taking ownership for VTE prevention.
Thromboprophylaxis is cost effective
costs per 100,000 patients

<table>
<thead>
<tr>
<th>Recommendations with significant costs</th>
<th>Costs per year (£)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offer pharmacological VTE prophylaxis to general medical admissions assessed to be at risk of VTE</td>
<td>14,000</td>
</tr>
<tr>
<td>Offer VTE prophylaxis to admissions undergoing surgery</td>
<td>2,000</td>
</tr>
<tr>
<td><strong>Estimated cost of implementation</strong></td>
<td><strong>16,000</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Recommendations with significant savings</th>
<th>Savings per year (£)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offer pharmacological VTE prophylaxis to general admissions patients assessed to be at risk of VTE – VTE events avoided</td>
<td>9,000</td>
</tr>
<tr>
<td>Offer VTE prophylaxis to admissions undergoing surgery –VTE events avoided</td>
<td>3,000</td>
</tr>
<tr>
<td><strong>Estimated saving of implementation</strong></td>
<td><strong>12,000</strong></td>
</tr>
</tbody>
</table>
Patient admitted to hospital

Assess VTE risk.

Assess bleeding risk

Reassess risks of VTE and bleeding within 24 hours of admission and whenever clinical situation changes.

Balance risks of VTE and bleeding.

Offer VTE prophylaxis if appropriate.
Do not offer pharmacological VTE prophylaxis if patient has any risk factor for bleeding and risk of bleeding outweighs risk of VTE.

Hospital infrastructure - thromboprophylaxis committee & team
National infrastructure - Exemplar Centres, National Lead
Deaths from VTE related events within 90 days post discharge from hospital (NHS Outcomes Framework Indicator 5.1)

Rate per 100,000 adult admissions, 2007/08 to 2017/2018

15.4% decrease in post-discharge VTE deaths since onset.
Consequences of VTE prevention in England

- Death rate due to pulmonary embolism has dropped by 9% in England.

*Catterick D, Hunt BJ Blood Coag & Fibrinolysis 2014; 25: 571-576*
World Thrombosis Day

A global movement to place a spotlight on thrombosis as an urgent and growing health problem.
World Thrombosis Day Mission Statement

World Thrombosis Day seeks to increase global awareness of thrombosis, including its causes, risk factors, signs/symptoms and evidence-based prevention and treatment. Ultimately, we strive to reduce death and disability caused by the condition.

It supports the World Health Assembly’s global target of reducing premature deaths by non-communicable disease by 25 percent by 2025.
World Thrombosis Day
Increasing awareness of thrombosis & VTE

THE FACTS
A blood clot that forms in the leg is called deep vein thrombosis (DVT). If the blood clot breaks loose and travels up to your lungs, it is called a pulmonary embolism (PE).
Together, they are known as venous thromboembolism (VTE).

THE NUMBERS
1 in 4 people die from causes related to blood clots
1-3 top cardiovascular killers are linked to blood clots
#1 cause of preventable death in hospitals is VTE
60% of all VTE cases occur during or following hospitalization
World Thrombosis Day Objectives

1. HIGHLIGHT the burden of disease and need for action.
2. INCREASE PUBLIC AWARENESS of the significant risks, signs and symptoms of thrombosis.
3. EMPower INDIVIDUALS to talk with their healthcare providers about their risk for thrombosis and appropriate prevention.
4. GALvanize ORGANIZATIONS in countries across the globe.
5. ADVOCATE FOR “SYSTEMS OF CARE” to properly prevent, diagnose and treat venous thrombosis (VTE) and atrial fibrillation (AFib).
WTD 2018 marked the fifth anniversary of the campaign – an important milestone as we reflect on the impact and success of the global campaign since its inception. To commemorate the anniversary, a new theme of “Five Years Flowing” launched for WTD 2018.

In just five years, WTD has expanded to a powerful global movement uniting more than 1,500 partners from 100+ countries to raise awareness about thrombosis and help save lives.

Today, WTD has become the leading global awareness campaign on blood clotting disorders and continues to inspire and empower billions of patients, survivors, partners, and advocates across the world.

2018 OBJECTIVES

1. Highlight the burden of disease and need for action.
2. Increase public awareness of the significant risks, signs and symptoms of thrombosis.
3. Empower individuals to talk with their healthcare providers about their risk for thrombosis and appropriate prevention.
4. Galvanize organizations in countries across the globe.
5. Begin the process of advocating for “systems of care” to properly prevent, diagnose and treat VTE and AFib.

2018 TOP HIGHLIGHTS

- Surpassed new record of 1,500 global partners from 100+ countries
- Launched inaugural WTD Thrombosis Ambassador of the Year Award
- Co-hosted launch of cancer-associated thrombosis awareness report
- Expanded education to healthcare professionals with new e-learning modules and scientific sessions
- Recognized 5th anniversary of the campaign

<table>
<thead>
<tr>
<th>Metrics</th>
<th>Year 1 (14)</th>
<th>Year 3 (16)</th>
<th>Year 5 (18)</th>
</tr>
</thead>
<tbody>
<tr>
<td># of partners</td>
<td>175</td>
<td>675</td>
<td>1,500+</td>
</tr>
<tr>
<td>Countries represented</td>
<td>50</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>Corporate supporters</td>
<td>10</td>
<td>14</td>
<td>15</td>
</tr>
<tr>
<td>Global events &amp; activities</td>
<td>800</td>
<td>8,200</td>
<td>10,000+</td>
</tr>
<tr>
<td>Media impressions</td>
<td>153.2 million</td>
<td>1.9 billion</td>
<td>2.6 billion</td>
</tr>
<tr>
<td>Twitter chat impressions</td>
<td>10 million</td>
<td>45 million</td>
<td>96 million</td>
</tr>
<tr>
<td>Facebook followers</td>
<td>2,098</td>
<td>5,203</td>
<td>15,700</td>
</tr>
<tr>
<td>Twitter Followers</td>
<td>1,061</td>
<td>3,851</td>
<td>6,696</td>
</tr>
</tbody>
</table>
Meet the World Thrombosis Day 2018 Thrombosis Ambassador of the Year
Christine Ashimwe from Rwanda

VTE Survivor and Founder/Executive Director of Rwanda Clot Awareness Network (RCAN)
The objective of WHO is the attainment by all peoples of the highest possible level of health.
Non Communicable Disease = NCDs

WHO target: to reduce premature death due to NCDs
By 25% in 2025
30% by 2030
Patient safety

Global Patient Safety Collaborative

WHO and the UK Government enter into new strategic collaboration towards establishment of the Global Patient Safety Collaborative (GPSC).

As countries advance towards universal health coverage (UHC), they must also improve the safety of their health systems. The GPSC will enable countries to collaborate at global, regional, and national levels to focus on patient safety as one of the most important components of health care delivery, essential to achieving UHC and moving towards UHC 2030.

WHO GPSC Briefing note
pdf, 487kb
WHO GPSC Questions and Answers
pdf, 614kb

Magnitude

1 in 4

As many as 1 in 4 patients are harmed whilst receiving primary and ambulatory health care.

The economics of patient safety: primary and ambulatory care – Flying blind (OECD study)

Incidence

134 million

134 million adverse events occur each year in hospitals in LMICs, contributing to 2.6 million deaths annually due to unsafe care.

Crossing the global quality chasm: Improving health care worldwide

Medications

$42 billion

Medication errors cost an estimated 42 billion USD annually.

The third WHO Global Patient Safety Challenge: Medication Without Harm

Patient Safety

Patient safety is the absence of preventable harm to a patient during the process of health care and reduction of risk of unnecessary harm associated with health care to an acceptable minimum. An acceptable minimum refers to the collective notions of given current knowledge, resources available and the context in which care was delivered weighed against the risk of non-treatment or other treatment.

Every point in the process of care-giving contains a certain degree of inherent intensity.

Clear policies, organizational leadership capacity, data to drive safety improvements, skilled health care professionals and effective involvement of patients in their care, are all needed to ensure sustainable and significant improvements in the safety of health care.

Key resources

– Multifocal Patient Safety Curriculum Guide
– Safe Childbirth Checklist
– Surgical Safety Checklist

WHO Patient Safety and Risk Management

– About us
– Patient safety brochure
– Contact us
NOTHING WHATSOEVER ON VTE & PREVENTION OF HOSPITAL-ASSOCIATED VTE
WHO data on hospital-associated VTE

• WHO have shown that globally there are almost 10 million hospital-associated VTE every year (Jha et al, BMJ Qual Safety 2013).

• It is the leading cause of adverse events due to hospital admission in low & middle income countries.

• It is the biggest cause of lost DALY (disability adjusted life years) as a result of hospital admission in all countries.

• VTE causes more hospital-associated adverse events than catheter-related sepsis, hospital-acquired pneumonia & falls.
April 2015
Letter to Sir Liam Donaldson,
WHO Envoy for Patient Safety

Informal hearing
On NCD action plan
8th Dec 2016
Geneva, spoke & submitted a paper
71\textsuperscript{st} WHA side event “Global action on patient safety for achieving effective universal health coverage”
Geneva, 22\textsuperscript{nd} May 2018

• Attended with Sir Bruce Keogh (ex Medical Director of NHS who mandated VTE risk assessment in England)
• Chaired by Jeremy Hunt, UK Minister of Health
• Reviewed progress with Patient Safety in nine countries, (9 health ministers spoke) and hopelessly over ran
• Jeremy Hunt left as soon as he had spoken (mentioned VTE x 1) and unexpectedly handed chair over to Sir Bruce
• In AOB I talked about prevention of HAT
• Many came up afterwards to say they had never heard of hospital-associated VTE....
Meeting 23rd May 2018 with Dr Neelam Dhingra, Coordinator for the WHO Patient Safety & Quality Improvement Unit,

A one-to-one meeting...
Dr Dhingra is a trained Haematologist (Blood Transfusion) & did her postgraduate training in London, and she really know all the issues around VTE prevention Chastised me that ISTH were already a registered NGA with WHO (biological standards) Told me to submit a strategic plan for 2019-2021 URGENTLY
Meeting 23rd May 2018 with Dr Neelam Dhingra, Coordinator for the WHO Patient Safety & Quality Improvement Unit,

**A one-to-one meeting...**

Dr Dhingra is a trained Haematologist (Blood Transfusion) & did her postgraduate training in London, and she really know all the issues around VTE prevention.

Asked for a strategic plan for 2019-2021 URGENTLY

February 8th 2019: plan accepted!!

Now working on it
We have come a long way

But much to do to improve VTE awareness & care

Thanks to all with enthusiasm and drive – keep going!