Sustainability of VTE Prevention Protocol in Hip Fracture Patients

Mallya J.U.1, Su S. 1, Ng P. 1, Nurhayanti S. 2, Yiap P. L. 2, Chin G.F. 2, Lim M. S. M. 2, Nurlina A. M. 2, Ker J. S. Y. 2, Tan J. 2
1 Geriatric Medicine, 2 Nursing
Khoo Teck Puat Hospital

Mission Statement

Effective and sustainable measures to prevent Venous Thromboembolism (VTE) in hip fracture patients by SHINE methodology of Plan-Do-Study-Act (PDSA) cycle.

Team Members

	Name	Designation	Department
Team Leader	Jagadish Ullal Mallya	Senior Consultant	Geriatric Medicine
Team Members	Su Su	Consultant	Geriatric Medicine
	Priscilla Ng	Consultant	Geriatric Medicine
	Nurhayanti Bte Sulaiman	Senior Staff Nurse	Nursing
	Chin Guey Fong	Senior Nurse Clinician	Nursing
	Meliza Lim Siew Ming	Nurse Clinician	Nursing
	Nurlina Binte Abdul Manap	Nurse Clinician	Nursing
	Jeanice Ker Sin Yue	Assistant Nurse Clinician	Nursing
	Yiap Pok Ling	Deputy Director of Nursing	Nursing
	Tan Jian You	Senior Staff Nurse	Nursing
Sponsor			
Facilitator	Tang Min Tammie	Senior Executive	Office of Clinical Governance

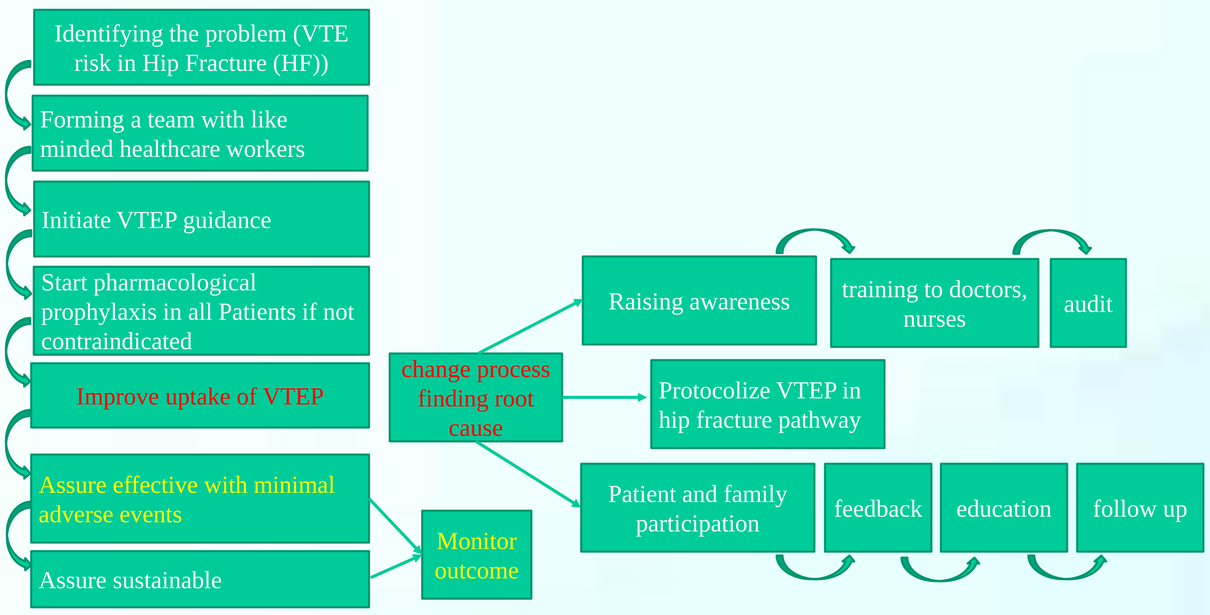
Evidence for a Problem Worth Solving

- Incidence of deep vein thrombosis (DVT) in hip fracture patients can be as high as **8.6%** according to a local study. However, there was no routine practice of pharmacologic prophylaxis even though it is recommended in the CHEST 9th edition guidelines. Although the incidence was lower than western population, symptomatic venous thrombotic embolism (VTE) can result in morbidities and mortalities and affect hospital length of stay.
- This project with introduction of a standardized protocol, training and monitoring program ensures hip fracture patient within the Hip fracture Unit (HFU) are assessed for risk of VTE.

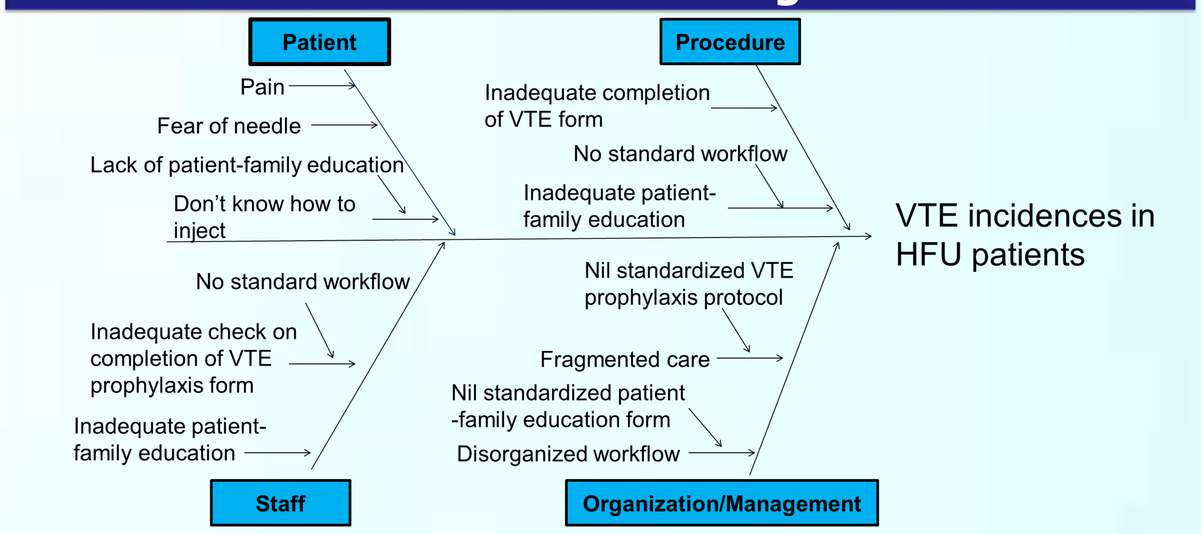
Current Performance of a Process

Year of Practice	Total Surgical patients	Number of Patients eligible for VTEP (%)	Number of Patients received VTEP (%)	Medication related adverse events
2015	269	269 (100)	248 (92.2)	0
2016	282	281 (99.6)	272 (96.8)	0
2017	285	282 (98.9)	277 (98.2)	2
2018	298	298 (100)	297 (100)	2

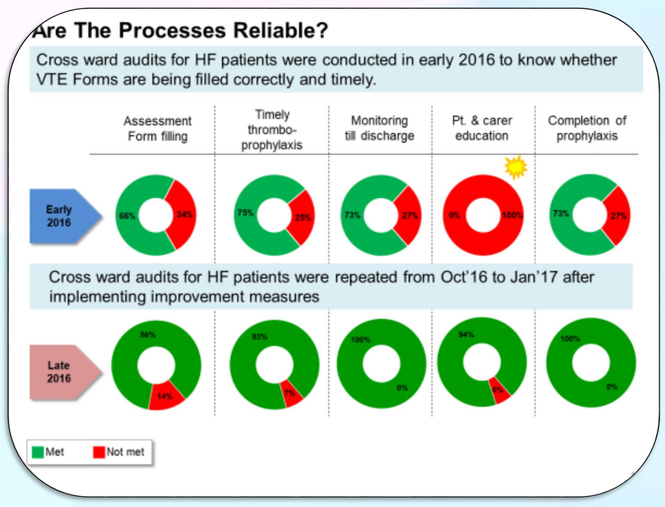
Flow Chart of Process

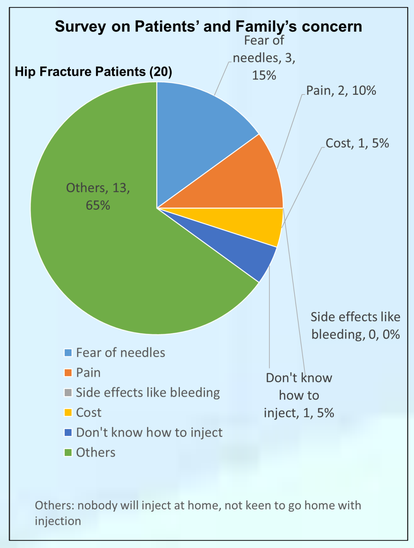


Cause and Effect Diagram



Tests of Change



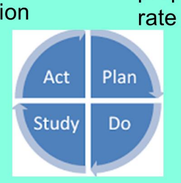


Implementation

PDSA 1

Patients put on clexane injection

Aim 80% prophylaxis rate



Patients assessed for bleeding risks

Standardized VTE risk assessment and protocol

PDSA 2

Cross ward audit

Teaching session for junior doctors and nurses

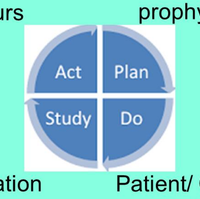
- Compliance
- Patients' surveys analysis

- Teaching slides
- Educational pamphlet for patients

PDSA 3

Follow up survey 24 hours later

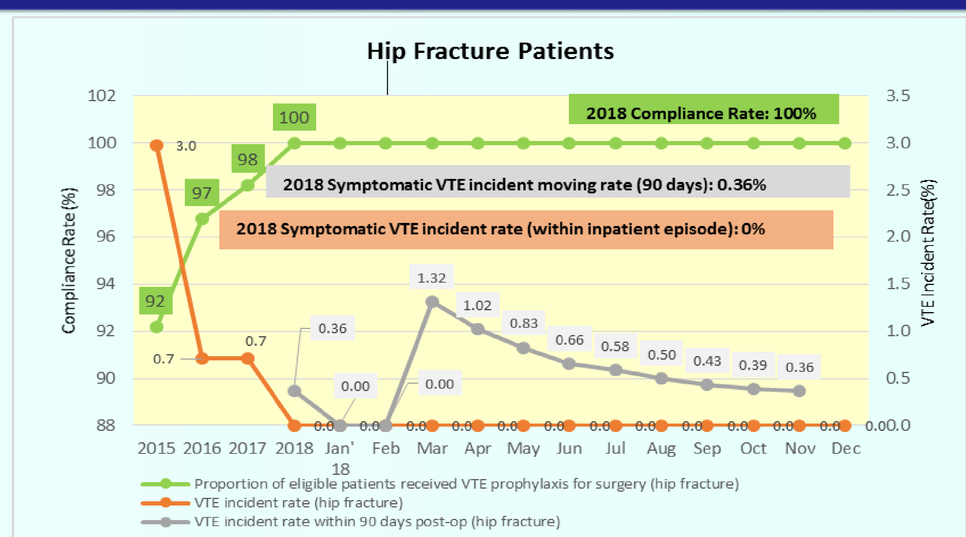
Patient/carers' acceptance of VTE prophylaxis



Education takes place

Patient/ Carers' satisfaction survey on VTE prophylaxis education

Results



Cost Savings

- From the cost saving perspective, a comparison was done between a patient not on Enoxaparin (Clexane) injection who could have sustained DVT during hospitalization and had to stay for 5 more days versus a patient who is on 35 days of Clexane injection with no incidence of DVT.
- Based on the cost of a Clexane injection costing $6 each, risk reduction from 3% to 0.36% per year and average 300 hip fracture patients.
- Patient on Clexane injection: $210
- Patient not on Clexane injection and sustained DVT (average 5 more days
- in hospital): $4000
- Saving (3-0.36) (4000-210) 300/100 = **$30016.8** per year

Problems Encountered

- Patient's and care givers' fear of needle and injection at home.

Strategies to Sustain

A structured VTE prophylaxis compass with **repeated PDSA cycles** has shown a significant reduction in VTE and its safety and cost saving to patient and the hospital.

- Education and training of doctors and nurses which is easy to maintain and now embedded within the culture of HFU.
- Education of patients and carers with greater acceptance of the treatment.
- Celebrating success and sharing at meetings and national programme such as SHINE.