Student Name:
Student Number:

School of Health and Biomedical Sciences

Cover Sheet for Submission of Individual Assignment

Lecturer	
Due Date	
Word Count	1500-2000 words +/- 10%

Program	
Course	
Module/Assignment	Case Study assignment
Course Co-ordinator	

Student Information

Name	Student Number
ADD Your Name Here	Student number here

Upon submitting my assignment to the Acute Care Nursing 1 Blackboard site I acknowledge the following Declaration and Statement of Authorship:

1. I have saved an electronic copy of this assignment on my own computer, which can be produced if the original is lost or damaged.
2. This assignment is my original work and no part of it has been copied from any other student's work or from any other source except where due acknowledgement is made.
3. No part of this assignment has been written for me by any other person.
4. I have not previously submitted this work for any other course or module.
5. This work may be reproduced and/or communicated for the purpose of detecting plagiarism.
6. I give permission for a copy of my marked work to be retained by the Discipline for review by external examiners.

I understand that:

7. Plagiarism is the presentation of the work, idea or creation of another person as though it is your own. It is a form of cheating and is a very serious academic offence that may lead to expulsion from the University. Plagiarised materials can be drawn from, and presented in written, graphic and visual form, including electronic data and oral presentations. Plagiarism occurs when the origin of the material used is not appropriately cited.
8. Plagiarism includes the act of assisting or allowing another person to plagiarise or to copy my/our work.

Student Name:
Student Number:

Table of contents

Student Name:
Student Number:

Assignment Topic 1

Mrs. Dorothy (Dotty) Beecham has a history of deep vein thrombosis (DVT) and will continue to be at risk on discharge. Using the current literature and pathophysiology explain the risk that recurrent DVT may pose to her future health. Using evidence, develop a discharge plan in relation to her educational needs and support requirements. Outline how you would explain the symptoms to look out for and when to seek medical advice to Mrs Beecham.

Student Name:
Student Number:

Case Study of Nurse Care Plan of a Patient with Deep Vein Thrombosis

1. **Introduction**

Deep Vein Thrombosis (DVT) is a result of blood clots or thrombus formation of in deep veins and frequently occurs in limbs (Boyd, 2015). When the thrombus development occurs in lungs, it is referred to as pulmonary embolism (PE), which is one of the most serious complications of associated with ~40% DVT patients. Disability and chronic pain caused by recurrent DVT may lead to long-term health effects. These health conditions include, recurrent episodes of DVT (Cowell et al., 2016), post-phlebitic syndrome (PPS) (Nayak & Vedantham, 2012), post-thrombotic syndrome (PTS) (Prandoni et al., 2016), venous thromboembolism (VTE) (Nordstrom et al., 2015) as well as bleeding and high mortality in many patients (Verso et al., 2012).

Raising the awareness of DVT and associated conditions in patients and caregivers, development of prevention approaches, enhancement of methods for patient education and improvement of patient information materials such as handouts are essential to facilitate the proper care of the DVT patients and prevention of future health threats. Using a case study on a 74-year-old patient, Mrs. Dorothy Beecham, who was admitted to the hospital with DVT and many other complications, a patient care plan executed by a nurse is described in this review.

2. Future health risks caused by recurrent DVT

Recurrent DVT may pose risk in development recurrent episodes of DVT, PPS, PTS, VTE and bleeding.

2.1 Prediction of risk of recurrence of DVT in the patient

Literature- and pathophysiology-based prediction: DVT can be caused by synergistic effects of genetic-, acquired- and environmental- risk factors **(Figure 1A)** (Streiff et al., 2016). As no

information was provided on genetic factors of the patient, they could not be used to predict the recurrent DVT risk for her. On the contrary, information on both acquired and environmental risk factors were used systematically to predict her risk of DVT recurrence. Mrs. Meecham meets several of these criteria for recurrent DVT, previous history of DVT being a major reason. Additionally, her older age (74 years), cardiac conditions such as myocardial infarction, vascular conditions of hypertension, hypercholesterolemia, immobilization due to osteoarthritis may also pose higher likelihood of recurrent DVT. Moreover, based on the reports on high correlation between chronic obstructive pulmonary disease (COPD) exacerbation and DVT (Lankeit & Held, 2016), Mrs. Meecham is at high risk of developing DVT again. A major factor highlighted in her health chart was smoking (5 cigarettes/day since 2012) and daily alcohol consumption. Smoking independently cause ~25% higher risk of DVT (Cheng et al., 2013), and combined with her history of myocardial infarction and hypertension, smoking elevates her risk of recurrent DVT. Additionally, her diabetic condition also adds up the risk of DVT recurrence as shown by other studies (Chung et al., 2015). Moreover, she is scheduled to have a total knee replacement surgery in the near future. Studies suggest possibilities of increased risk of DVT after knee replacement arthroplasty (Zhao et al., 2014). Collectively, the risk factors found in Mrs. Meecham which may contribute recurrence of DVT and/or associated conditions include history of DVT, advanced age, heart failure, diabetes, smoking, COPD and immobilization **(Figure 1B)**.

Geneva and Wells clinical prediction rules-based prediction: Guidelines provided by (Hogg et al., 2012) for clinical prediction rules of DVT were used to predict the likelihood of recurrent DVT in Mrs. Beecham **(Table I)**. Based on the revised Geneva rules, she had a risk rate of 12, while Well's rules placed her in the risk class of 7. Both these clinical predication rules predicted '*high*' chance of DVT recurrence in Mrs. Meecham.

2.2 Likelihood of development of post-thrombotic syndrome, venous thromboembolism and post-phlebitic syndrome

Many DVT patients develop both short-term and long term health outcomes of DVT. Most common long-terms health outcomes include PTS, Venous thromboembolism and PPS **(Table II)**. Post-thrombotic syndrome is a chronic clinical disorder characterized by pain, swelling in the leg and fatigue, that develops in 20-50% of patients within 2 year of DVT. In severe conditions, it also leads to chronic leg pain and leg ulceration. Clinical scoring systems such as Brandjes scale, Ginsberg -measure and Villalta scale can be used to assess whether there is a risk of development of PTS followed by DVT (Soosainathan et al., 2013). Using Villalta PTS scoring system, it was assessed whether Mrs. Meecham have any risk of development of PTS **(Table III)**. Some of the clinical signs and symptoms of PTS were already visible on her. However, as the severity of these signs were not provided, calculation of accurate scoring was not possible. Yet, she may have a probability of development of PTS. Recurrent ipsilateral DVT is the most predominant risk factor for PTS, although addition factors such as gender, obesity and genetic predisposition has also been implied in other studies (Baldwin et al., 2013). Venous hypertension, following DVT is a common cause for PTS, which could lead to increased tissue permeability (Kahn et al., 2016).

2.3 Bleeding

The major drugs used for the prevention and treatment of DVT and VTE are anticoagulants (blood thinners) and examples include Heparin, fondaparinux, vitamin K antagonists (VKAs) and Xa inhibitors. However, they pose a greater risk of severe bleeding. Case-fatalities from major bleeding due to anticoagulant treatment in VTE patients have been reported to be as high as 13.4% (Linkins et al., 2003). Warfarin-associated intracranial hemorrhage has been linked to 50% mortality rate (Shoeb & Fang, 2013).

3. Patient Discharge Plan

The priority of a discharge plan is to ensure the patient and the caregivers are given required information on the management of the patient's conditions, education of the patients/caregivers about the disease and risk factors, and medication reconciliation. In order to assure the aforementioned, a discharge plan checklist (**Appendix I**) was developed based on care coordination publications of the patients with DVT/ PE from (Janssen Pharmaceuticals, 2013) and (Agency for Healthcare Research and Quality, June 2013).

3.1 Discharge meeting for medication reconciliation and patient education

Medication reconciliation will be a priority discussion point with Mrs. Meecham and her caregivers during the discharge meeting. She is currently on Heparin infusion as the initial anticoagulation therapy. Two types of anticoagulants are used to treat DVT; 1) Injectable or intravenously delivered medications (Eg. Fondaparinux Heparin and low molecular weight heparin) and 2) oral anticoagulants (Eg. Warfarin). If the doctor recommends Heparin usage after discharge, the patient may have to visit the nearest health care provider to receive this or set up a home care system. Heparin administration can also be done by a caregiver and/or through self-administration. Appropriate safety measures should be taken during self-administration. As she is also diabetic, the heparin administration can be arranged during the time of insulin injections. Warfarin may be prescribed as a life-long treatment plan for recurrent DVT patients such as Mrs. Meecham. Her medical history does not indicate Warfarin as a medication being currently taken. If Mrs. Meecham is prescribed Warfarin post-discharge, specific instructions should be provided with regard to complications and dietary restrictions (Witt et al., 2016) (discussed in next section below). She should also continue wearing compression stockings.

Other discussions that should be carried out during the discharge meeting are outlined in **Appendix I**. The nurse should assess the patient and the caregivers about the readiness/motivation to

educate themselves, complaint or request assistance when necessary, in order to provide the best care plans and ensure the safety of the patient post-discharge. A patient/caregiver education leaflet will also be provided during this meeting. Examples of such leaflets are shown in **Appendix II-III**.

3.2 Post-discharge recommendations

The major points discussed and emphasized to follow post-discharge are keeping a tightly controlled medication regime, education of the patient and the caregiver what actions to be taken if a dose is missed **(Appendix III)**, what signs to look for in case of an emergency (will be discussed in section 4), dietary or lifestyle changes to follow while taking anticoagulants and cessation of smoking.

Dietary considerations and lifestyle changes: Patients who take Warfarin as an anticoagulant treatment for DVT should be provided with dietary restriction plans (Witt et al., 2016). It is important to maintain a regular intake on vitamin (adult men 120 µg; adult women 90 µg) and avoid taking foods containing extra vitamin K such as kale, parsley, spinach, Brussels sprouts, mustard greens and green tea. Intake of Cranberry juice and alcohol while taking Warfarin may lead to excessive bleeding. Many of the blood thinners should be taken with care and the lifestyle should be managed to avoid opportunities of bleeding. Instructions for such lifestyle changes are outlined in **Appendix III**.

Smoking cessation recommendations: She has reduced her smoking habits from 20 cigarettes/day up to 5 cigarettes/day. However, she still may have higher risk or exacerbation of many chronic illnesses associated with smoking such as diabetes, heart failure, hypertension and COPD. Therefore, it is advisable to recommend an efficient smoke cessation therapy. In a meta-analysis of 42 trials summarized that advice and encouragement given by nurses or other healthcare professionals at a hospital setting are much effective in smoking cessation and/or quitting by patients (Rice et al., 2013). The nurse can practice the five A system, ‘Ask, Advise, Assess, Assist, and Arrange’

(Okuyemi et al., 2006) to facilitate the smoking cessation in Mrs. Meecham **(Figure 2)**. Possible smoking/nicotine replacement therapies include non-nicotine therapy by use pharmacologic agents and nicotine replacement therapies such as nasal spray, lozenge, gum, patch and inhaler usage (Ferguson et al., 2011). In some cases, electronic cigarette use can also be suggested (Antolin & Barkley Jr, 2015).

4. Education of the patient on future symptom development and follow up medical care

As described in section 2, Mrs. Meecham's current and history of medical conditions, there are many future health risks. Therefore, the patient should be advised to immediately call 911, health care provider and/or seek immediate medical attention by visiting the nearest emergency care department/hospital in the development of any '*look out signs*'. The major look out symptoms include, sharp and sudden chest pain, shortness of breath, dizziness, coughing up blood and unstoppable bleeding. The development of these signs may imply recurrent episode of DVT, development of other associated conditions such as PPS, PTS, VTE and finally may lead to death due to bleeding (Cameron et al., 2011).

Educational leaflet/handouts will be provided and discussed in detail with her and the caregiver. These educational handout will contain the information on any symptoms to look out for as well as when to seek medical advice, among other information on DVT. A sample educational handout was prepared as shown in **Appendix II**, based on educational handouts given to DVT patients by RVH Victoria hospital and St.Joseph's health care Hamilton. Moreover, another handout was prepared which contains specific information on self-care strategies, emergency situations and how to respond **(Appendix III)**, based on other studies (Burnett, 2013; Guyatt et al., 2012)

Student Name:
Student Number:

Conclusions

DVT is a devastating disease conditions that may lead to many other complications affecting the overall health, life style and life expectancy of the patient. However, appropriate medical treatment upon primary diagnosis followed by a thorough patient-care strategy following discharge can enhance the chances of successful disease management. The follow-up strategies including education on medication side effects, and dangerous symptoms could provide vital information that would assist the patient in making critical decisions in an emergency. Also ensuring constant support and communication between the patient and healthcare professional would play a vital role in long term disease management.

References

Agency for Healthcare Research and Quality, R., MD. . (June 2013). Strategy 4: Care Transitions From Hospital to Home: IDEAL Discharge Planning. .

Antolin, V. M., & Barkley Jr, T. W. (2015). Electronic cigarettes: What nurses need to know. *Nursing2015, 45*(11), 60-64.

Baldwin, M. J., Moore, H. M., Rudarakanchana, N., Gohel, M., & Davies, A. H. (2013). Post-thrombotic syndrome: a clinical review. *J Thromb Haemost, 11*(5), 795-805. doi:10.1111/jth.12180

Bidwell, J. L., & Pachner, R. W. (2005). Hemoptysis: diagnosis and management. *Am Fam Physician, 72*(7), 1253-1260.

Boyd, J. (2015). Deep Vein Thrombosis and Pulmonary Embolism: A guide for practitioners. *Nursing Standard, 30*(5), 30-30.

Burnett, B. (2013). Management of venous thromboembolism. *Prim Care, 40*(1), 73-90. doi:10.1016/j.pop.2012.11.004

Cameron, P., Jelinek, G., Kelly, A.-M., Murray, L., & Brown, A. F. (2011). *Textbook of adult emergency medicine*: Elsevier Health Sciences.

Cheng, Y.-J., Liu, Z.-H., Yao, F.-J., Zeng, W.-T., Zheng, D.-D., Dong, Y.-G., & Wu, S.-H. (2013). Current and Former Smoking and Risk for Venous Thromboembolism: A Systematic Review and Meta-Analysis. *PLoS Med, 10*(9), e1001515. doi:10.1371/journal.pmed.1001515

Chung, W. S., Lin, C. L., & Kao, C. H. (2015). Diabetes increases the risk of deep-vein thrombosis and pulmonary embolism. A population-based cohort study. *Thromb Haemost, 114*(4), 812-818. doi:10.1160/TH14-10-0868

Cowell, G. W., King, S. C., Reid, J. H., van Beek, E. J., & Murchison, J. T. (2016). Long-term adverse effects associated with isolated below-knee deep-vein thrombosis: a 10-year follow-up study. *Clin Radiol, 71*(4), 369-374. doi:10.1016/j.crad.2015.12.014

de Franciscis, S., Gallelli, L., Amato, B., Butrico, L., Rossi, A., Buffone, G., . . . Serra, R. (2015). Plasma MMP and TIMP evaluation in patients with deep venous thrombosis: could they have a predictive role in the development of post-thrombotic syndrome? *Int Wound J*. doi:10.1111/iwj.12489

Ferguson, S. G., Shiffman, S., & Gitchell, J. G. (2011). Nicotine replacement therapies: patient safety and persistence. *Patient Relat Outcome Meas, 2*, 111-117. doi:10.2147/PROM.S11545

Galanaud, J. P., Sevestre, M. A., Genty, C., Kahn, S. R., Pernod, G., Rolland, C., . . . Bosson, J. L. (2014). Incidence and predictors of venous thromboembolism recurrence after a first isolated distal deep vein thrombosis. *J Thromb Haemost, 12*(4), 436-443. doi:10.1111/jth.12512

Guyatt, G. H., Akl, E. A., Crowther, M., Gutterman, D. D., & Schuunemann, H. J. (2012). Executive summary: Antithrombotic Therapy and Prevention of Thrombosis, 9th ed: American College of Chest Physicians Evidence-Based Clinical Practice Guidelines. *Chest, 141*(2 Suppl), 7S-47S. doi:10.1378/chest.1412S3

Hogg, K., Wells, P. S., & Gandara, E. (2012). The diagnosis of venous thromboembolism. *Semin Thromb Hemost, 38*(7), 691-701. doi:10.1055/s-0032-1327770

Janssen Pharmaceuticals, I. (2013). Discharge Planning Checklist, Treatment and Secondary Prevention of DVT and PE

Kahn, S. R., Galanaud, J. P., Vedantham, S., & Ginsberg, J. S. (2016). Guidance for the prevention and treatment of the post-thrombotic syndrome. *J Thromb Thrombolysis, 41*(1), 144-153. doi:10.1007/s11239-015-1312-5

Kahn, S. R., Solymoss, S., Lamping, D. L., & Abenhaim, L. (2000). Long-term outcomes after deep vein thrombosis: postphlebitic syndrome and quality of life. *J Gen Intern Med, 15*(6), 425-429.

Lang, K., Patel, A. A., Munsell, M., Bookhart, B. K., Mody, S. H., Schein, J. R., & Menzin, J. (2015). Recurrent hospitalization and healthcare resource use among patients with deep vein

thrombosis and pulmonary embolism: findings from a multi-payer analysis. *J Thromb Thrombolysis, 39*(4), 434-442. doi:10.1007/s11239-014-1108-z

Lankeit, M., & Held, M. (2016). Incidence of venous thromboembolism in COPD: linking inflammation and thrombosis? *Eur Respir J, 47*(2), 369-373. doi:10.1183/13993003.01679-2015

Linkins, L. A., Choi, P. T., & Douketis, J. D. (2003). Clinical impact of bleeding in patients taking oral anticoagulant therapy for venous thromboembolism: a meta-analysis. *Ann Intern Med, 139*(11), 893-900.

Mearns, E. S., Coleman, C. I., Patel, D., Saulsberry, W. J., Corman, A., Li, D., . . . Kohn, C. G. (2015). Index clinical manifestation of venous thromboembolism predicts early recurrence type and frequency: a meta-analysis of randomized controlled trials. *J Thromb Haemost, 13*(6), 1043-1052. doi:10.1111/jth.12914

Nayak, L., & Vedantham, S. (2012). Multifaceted management of the postthrombotic syndrome. *Semin Intervent Radiol, 29*(1), 16-22. doi:10.1055/s-0032-1302447

Nordstrom, B. L., Evans, M. A., Murphy, B. R., Nutescu, E. A., Schein, J. R., & Bookhart, B. K. (2015). Risk of recurrent venous thromboembolism among deep vein thrombosis and pulmonary embolism patients treated with warfarin. *Curr Med Res Opin, 31*(3), 439-447. doi:10.1185/03007995.2014.998814

Nutescu, E. A., Crivera, C., Schein, J. R., & Bookhart, B. K. (2015). Incidence of hospital readmission in patients diagnosed with DVT and PE: clinical burden of recurrent events. *Int J Clin Pract, 69*(3), 321-327. doi:10.1111/ijcp.12519

Okuyemi, K. S., Nollen, N. L., & Ahluwalia, J. S. (2006). Interventions to facilitate smoking cessation. *Am Fam Physician, 74*(2), 262-271.

Ordi, J., Salmeron, L., Acosta, F., Camacho, I., & Marin, N. (2016). [Study of prognostic factors and prevalence of post-thrombotic syndrome in patients with deep vein thrombosis in Spain]. *Med Clin (Barc), 146*(2), 49-54. doi:10.1016/j.medcli.2015.04.030

Prandoni, P., Noventa, F., Lensing, A. W., Prins, M. H., & Villalta, S. (2016). Post-thrombotic syndrome and the risk of subsequent recurrent thromboembolism. *Thromb Res, 141*, 91-92. doi:10.1016/j.thromres.2016.03.010

Rice, V. H., Hartmann-Boyce, J., & Stead, L. F. (2013). Nursing interventions for smoking cessation. *Cochrane Database Syst Rev, 8*.

Shoeb, M., & Fang, M. C. (2013). Assessing bleeding risk in patients taking anticoagulants. *J Thromb Thrombolysis, 35*(3), 312-319. doi:10.1007/s11239-013-0899-7

Soosainathan, A., Moore, H. M., Gohel, M. S., & Davies, A. H. (2013). Scoring systems for the post-thrombotic syndrome. *Journal of Vascular Surgery, 57*(1), 254-261. doi:http://dx.doi.org/10.1016/j.jvs.2012.09.011

Streiff, M. B., Agnelli, G., Connors, J. M., Crowther, M., Eichinger, S., Lopes, R., . . . Ansell, J. (2016). Guidance for the treatment of deep vein thrombosis and pulmonary embolism. *Journal of thrombosis and thrombolysis, 41*(1), 32-67.

Ten Cate-Hoek, A. J., Henke, P. K., & Wakefield, T. W. (2015). The post thrombotic syndrome: Ignore it and it will come back to bite you. *Blood Rev*. doi:10.1016/j.blre.2015.09.002

Verso, M., Agnelli, G., Ageno, W., Imberti, D., Moia, M., Palareti, G., . . . Cantone, V. (2012). Long-term death and recurrence in patients with acute venous thromboembolism: the MASTER registry. *Thromb Res, 130*(3), 369-373. doi:10.1016/j.thromres.2012.04.003

Witt, D. M., Clark, N. P., Kaatz, S., Schnurr, T., & Ansell, J. E. (2016). Guidance for the practical management of warfarin therapy in the treatment of venous thromboembolism. *Journal of thrombosis and thrombolysis, 41*(1), 187-205.

Zhao, Z., Wang, S., Ma, W., Kong, G., Zhang, S., Tang, Y., & Zhao, Y. (2014). Diabetes mellitus increases the incidence of deep vein thrombosis after total knee arthroplasty. *Arch Orthop Trauma Surg, 134*(1), 79-83. doi:10.1007/s00402-013-1894-3

Figures

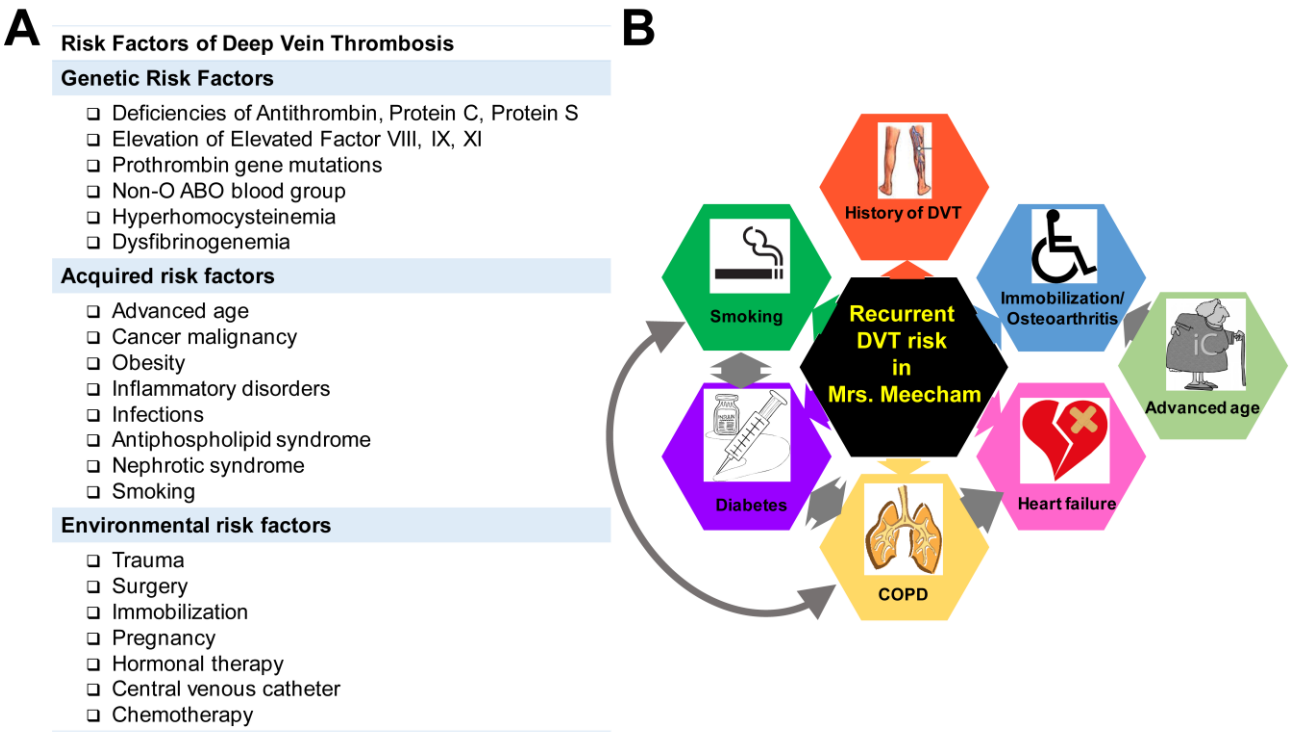


Figure 1. Risk factors for recurrence of Deep Vein Thrombosis (DVT) in Mrs. Meecham.

A) Categories of risk factors that may pose a likelihood of DVT development. Adapted and modified from (Streiff et al., 2016). B) Interactions of different risk factors found in Mrs. Meecham that may lead to recurrence of DVT. Clip arts were adapted from commons.wikimedia.org, www.pinterest.com, www.clker.com, www.clipartpanda.com, justpict.com, www.justacoloradogal.com. Abbreviations: COPD: chronic obstructive pulmonary disease.

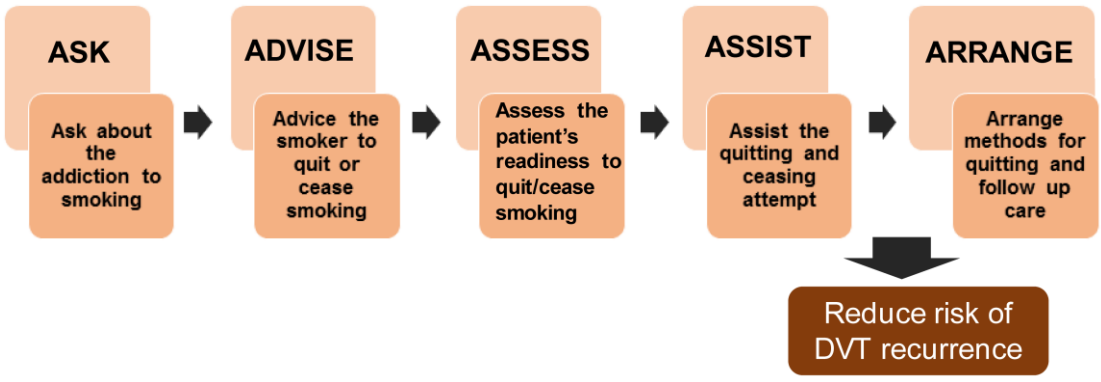


Figure 2. The 5 A system of smoking cessation to prevent recurrence of Deep Vein Thrombosis (DVT) in Mrs. Meecham. The 5A system is used to treat patients with nicotine or smoking addictions.

Tables

Table 1. The revised Geneva and Wells clinical prediction rules[a]		
Variables	**Points**	**Mrs. Meecham's scoring**
Revised Geneva clinical predication rules		
Previous history of DVT or PE	+3	+3
Age > 65 yrs	+1	+1
Heart rate		
> 75–94 bpm	+3	+3
> 94 bpm	+5	NR
Surgery or fracture within 1 mo	+2	NR
Active cancer malignancy	+2	NR
Hemoptysis	+2	+2
Unilateral leg pain (lower limb pain)	+3	+3
Pain on lower limb deep venous palpation and unilateral edema	+4	uncertain
Risk class		
Intermediate	4–10	
High	> 10	12
Low	0–3	
Wells clinical predication rules		
Clinical signs of DVT	+3	+3
Previous history of DVT or PE	+1.5	+1.5
Heart rate > 100 bpm	+1.5	0
Recent surgery or immobilization[b]	+1.5	+1.5
Hemoptysis[c]	+1	+1
Malignancy	+1	NR
Alternative diagnosis less likely than PE	+3	0
Risk class		
Low	< 2	
Intermediate	2–6	
High	> 6	7
Unlikely	0–4	
Likely	> 4	

[a] Adapted and modified from (Hogg et al., 2012)
[b] Predicted based on the patient's history on osteoarthritis with poor mobility and the anticipation of Total Knee replacement surgery.
[c] Predicted based on the patient's claims on fatigue and strange-coloured sputum as well as clinical manifestations of dyspnoea, fever, and chills which would indicate Hemoptysis and Hematemesis (Bidwell & Pachner, 2005).

Abbreviations: yrs: years; mo: months; bpm: beats per minute; NR: not reported

Table II. Other health outcomes of deep vein thrombosis (DVT)

Associated disease	Percentage Reported	Reference
Recurrent DVT	4%	(Nutescu et al., 2015)
	6-16%	(Lang et al., 2015)
Post-thrombotic syndrome (PTS)	Approx. 50%	(de Franciscis et al., 2015)
	53%	(Ordi et al., 2016)
	Approx. 30%	(Ten Cate-Hoek et al., 2015)
Venous thromboembolism	7.9% (Combination of Isolated distal deep vein thrombosis and isolated proximal DVT)	(Galanaud et al., 2014)
	2.6%	(Mearns et al., 2015)
Post-phlebitic syndrome (PPS)	17% to 50%	(Kahn et al., 2000)

Table III. Villalta's Post-thrombotic syndrome scoring[d]

Symptoms/clinical signs	None	Mild	Moderate	Severe	Mrs. Meecham[e]

Symptoms					
Pain	0 points	1 point	2 points	3 points	✓
Cramps	0 points	1 point	2 points	3 points	0
Heaviness	0 points	1 point	2 points	3 points	0
Paresthesia	0 points	1 point	2 points	3 points	0
Pruritus	0 points	1 point	2 points	3 points	0
Clinical signs					
Pretibial edema	0 points	1 point	2 points	3 points	0
Skin induration	0 points	1 point	2 points	3 points	0
Hyperpigmentation	0 points	1 point	2 points	3 points	0
Redness	0 points	1 point	2 points	3 points	0
Venous ectasia	0 points	1 point	2 points	3 points	✓
Pain on calf compression	0 points	1 point	2 points	3 points	✓
Venous ulcer	Absent			Present	0

[d] Scoring system adapted from (Soosainathan et al., 2013)

[e] Severity of the symptoms in Mrs. Meecham was not provided in the medical chart. Therefore, the presence and absence were marked.

Appendices

Appendix I

Discharge Planning Checklist[f]

[f] Concepts were adapted and modified from (Agency for Healthcare Research and Quality, June 2013; Janssen Pharmaceuticals, 2013)

Treatment plan and Secondary Prevention plans of DVT and associated conditions

Instructions for healthcare professionals

Patient information:

Name: ……. Phone number: …….

Address: ……

Insurance information: ……..

Caregiver's information:

Name: ……. Phone number: …….

Next site of care: ……...

Date of discharge: ……

Fill in each step, write down initials, and date once each task as completed.

Initial assessment	**Planning the discharge meeting**	**Discussions prior to discharge**	**Recommendations made during discharge**
Risk assessment prior to discharge VTE risk assessment….. Inferior vena cava filter indication….. Assess risk factors associated with the patient ……. Caregiver/guardian is identified ……	Discharge checklist was given to patient……	Answered patient's questions ……	Medication Reconciliation: Post-discharge medication list was discussed ……. List of medications provided ……
Discussed discharge plans with patient and family ……	Handouts prepared …….	Answered family's/caregiver's questions ……	Medication management: New prescriptions and old prescription refill ……. Contacted pharmacy …… Insurance checked ……. Discussed medication plans with patient and caregivers ……. Emphasized importance of taking medications on time to the patient/caregiver ……. Dietary restrictions while taking medications……
	Discharge plan meeting is scheduled Date …/.../…	Discharge requirements were reviewed ……	Follow up care: Appointments……. Contacts for follow up care….. Instructions to patient: Patient Education package……. Discussed risk of recurrent DVT…. Discussed symptoms or recurrent

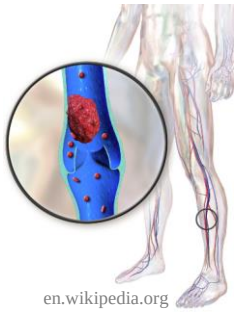
			DVT …… Smoking cessation recommendations……

Appendix II

Deep Vein Thrombosis (DVT) and Health Risks

WHAT IS DVT?

A condition caused by formation of blood clot(s) in deep veins, usually in limbs.



en.wikipedia.org

WHAT ARE THE SYMPTOMS OF DVT?

- Pain and/or sudden swelling of the legs
- Discoloration of large veins (red, purple or blue)
- Warm skin.
- Chest pain and/ shortness of breath.

WHAT CAUSES DVT?

- Injury to veins/legs
- Cancer
- Hormonal therapy
- Immobilization
- Chemotherapy
- Infections
- Blood diseases
- Heart failure

ARE THERE ANY SIGNS I SHOULD LOOK OUT FOR?

Call 911, Contact your health care provider, Immediately go to nearest Emergency Department

If any of these symptoms show up….

- Swollen leg
- Sudden chest pain and shortness of breath
- Light-headedness
- Coughing up blood
- Unstoppable bleeding

*Take all your medications and medical note to the hospital with you.

WHAT TREATMENTS ARE AVAILABLE FOR DVT?

You will be given anticoagulant medications (blood thinners) to prevent formation of more blood clots. Discuss with your health care provider about how to take these medications.

Examples: Low Molecular Weight Heparin, Warfarin

SHOULD I BE CAREFUL WHILE TAKING ANTICOAGULANTS?

- Avoid activities that can cause cuts or bruises.
- If a cut/bruise occurs apply pressure to stop bleeding.
- In case of nosebleed lie down and apply pressure.
- If bleeding does not stop immediately seek medical attention.

SMOKING CESSATION PLANS

- Smoking pose a great risk of DVT.
- A nurse or a health care professional will discuss a plan to quit smoking.
- You might have been recommended for Nicotine replacement therapy.
- Resources to help: Smokers Helpline - toll free 888-xxx-xxxx

RESOURCES

Mayo Clinic. Blood clots.
http://www.mayoclinic.org/symptoms/blood-clots/basics/definition/sym-20050850
Health Direct Australia
http://www.healthdirect.gov.au/deep-vein-thrombosis

References:
1) RVH Victoria hospital patient discharge information. www.renfrewhosp.com.
2) St.Joseph's health care Hamilton patient education leaflet. www.hamiltonhealthsciences.ca/

Appendix III

Self care and Emergency information on Deep Vein Thrombosis (DVT)

What is DVT?

A condition caused by formation of blood clot(s) in deep veins, usually in limbs. Formation of blood clots can block the blood flow in the limbs. They can also enter into other organs such as lung, heart and brain, and lead to other complications.

How do I self-care?

***Follow all instructions provided by your health care provider.

Pressure stockings:

- Wear them as prescribed by the doctor.
- Do not make them tight or wrinkled.
- Apply some moisturising lotion before you wear stockings.
- Keep the stockings clean and dry to avoid infections and other skin conditions (if possible wash everyday).
- Have a back up pair of stockings, in case you lose one or one is being washed.

Medications:

You have been prescribed blood thinners for DVT. Take the medications on time as prescribed by the health care provider.

If you miss a dose:

- Take the missed dose, if you remember it on the same day and resume the regular medication schedule.
- If it is almost time for the next dose, take the next dose. Do not double the medications.
- If you miss more than two doses, call your doctor immediately.
- Use a medicine planner to manage your medications properly.

Lifestyle habits while taking blood thinners:

- Only do the exercises recommended by the doctors.
- Do not involve in other activities which are not safe for you.

Be careful while doing the following to prevent indoor and outdoor

- Look out while using knives and scissors, razor, toothpicks, nail cutters and any sharp object
- Use an electric razor, waxed dental floss, soft toothbrush to avoid bleeding during these events.
- Wear protective footwear indoors and outdoors always.
- Be careful while doing gardening and wear protective gloves.
- Avoid sports or exercises that can harm you.

Managing your posture:

- Do not lie or sit for longer periods on the same position.
- Do not cross legs when sitting down.
- Use a stool or a small chair to lift your legs up, if they tend to swell.
- Use pillows to keep your legs in a lifted position while sleeping.
- Do not wear tight clothes.

Care while travelling:

- Have frequent stops to relax your legs
- If you are in a public transport, try getting up and walking to relax your legs often.
- If it is not possible get up, try to shift position, shake or wiggle legs, stretch and relax them.
- Do not keep your legs crossed.

Smoking and drinking habits:

- Smoking is harmful. Do not smoke. Seek help for quitting.
- Alcohol is also harmful. Avoid alcohol consumption.

Dietary habits:

- Drink lots of water (6-8 cups daily)
- Consume less salt and avoid using processed food with high salt contents.
- Keep a routine meal

When should I call the doctor?

- Look out symptoms
- Shortness of breath
- Sudden or sharp chest pain
- Swelling on the legs
- Coughing up blood
- Unstoppable or unusual bleeding (nose, ears, urine, stool, vomit)
- Fever or chills
- Dizziness
- Coldness in your leg

Emergency contacts

- Call 911 if nobody is around to help or ask any family member or caregiver to call 911.
- Primary health care provider (family doctors) ……
- Nearest emergency center/department ……

Criteria for Marking	Weight	Self Assess	Fail Comments	Pass Comments	Credit Comments	Distinction Comments	High Distinction Comments
Style & Presentation							
Adheres to style requirements; including use of assignment guidelines; such as word limit, double-spacing, use of header & footer, page numbers, and size-12 font	**2**	Please rank what you perceive your performance to be	You have not adhered to the style requirements in accordance with the assignment guidelines; with one or more of the following: no double spacing; incorrect font size, word limit not adhered to; no cover sheet; no title page; no page numbers; no use of headings. [0-0.9]	You have adhered to the style requirements at a basic level although you have not followed the guidelines fully; with one or more of the following: no page numbers, no or inadequate / incorrect use of headings, no double spacing, font size not readable, and word limit not adhered to. [1.0-1.25]	You have met the assignment guidelines satisfactorily, although you have not followed two or more of the required criteria. [1.25-1.5]	The majority of style requirements have been adhered to, although there are still some minor formatting errors. [1.5-1.75]	All style requirements and assignment guidelines adhered to. [1.75-2.0]
Spelling, grammar and paragraph structure meets academic standards	**2**		Many spelling and punctuation errors. Errors may include unclear sentence structure, no use of meaningful paragraphs to allow logical flow of content, poor use of professional language, and no definition of terms. You need to consult with the Study and Learning Centre for assistance with writing skills; before completing any further academic writing assessments. [0-0.75]	There are a number of spelling and grammatical errors throughout, which detract from your content and flow of ideas. Errors may include inadequate definition of terms, limited use of professional language, paragraphs not structured correctly, and too much use of point form in your responses. You need to review correct paragraph structure. [1.0-1.25]]	Your submission reads well, though there is not a logical flow of ideas. Problems may include some sentences being a bit confusing and/or rambling; good use professional language, but missing some definition of terms; and paragraphs missing a key idea or focus, to enable a flow of information. [1.25-1.5]	You have generally met the academic standards for writing, with few spelling and punctuation errors evident. Your paragraph structure is good, with good use of professional language. You still need to consistently define terms. [1.5-1.75]	Excellent paragraph structure. Professional language used throughout, with well-defined terms. [1.75-2.0]
Topic is introduced clearly and succinctly	**2**		Your introduction is either absent or too brief, and doesn't state what the topic is or what you intend to cover in your submission. [[0-0.75]	Your introduction is only a restatement of what the case study is about, and doesn't adequately state how you are going to set out your response to the question. [1.0-1.25]	You introduce the case study well, making clear links to the topic question. You have not stated clearly enough how you intend to set out your response. [1.25-1.5]	Your general introduction is good, with a clear summary of the key points to be covered. [1.5-1.75]]	You provide an excellent introduction to your submission, and clearly explain how you intend to answer the topic question. [1.75-2.0]
Conclusion provides a concise summary of main points covered	**2**		No conclusion is evident. You have not summarised the main components of your paper. [0-0.75]]	Concluding comments are too brief, and do not summarise the main components of your paper adequately. [1.0-1.25]	You sum up the major focus of the case study satisfactorily, but need to also contextualise the key points of your responses. [1.25-1.5]	You summarise the main components of your responses, but need to link them more consistently to your discussion. [1.5-1.75]	Your conclusion provides a high quality summary of the major points covered in your responses. [1.75-2.0]
Content							
Provides a comprehensive response to the criteria of the question	**10**		The question is inadequately answered. You have not provided rationales for the points that you identify. Your response is too general	Your response to the question is answered to a adequate level only, and require more detail and also to be applied more specifically to the topic. [5-	Your answer is satisfactorily researched, and addresses the key criteria. You focus on only one or two key points only, limiting your response to the question. [6.-6.9]	You have answered the question well, and in appropriate detail. You could have provided more detail in some areas. [7-7.9]	You have comprehensively answered the question to a high standard of detail. [8-10]

		and not focused on the topic. [0-5]	5.9]			
Effectively links evidence-based information to the case study data	**6**	Poor use of evidence to support your response. Your lack of supporting evidence indicates inadequate research into the topic question. [0-2.75]]	Your use of evidence-based information is limited to basic references only, and reflects inadequate research. [3.0-4.0]	The references used provide adequate evidence for your response, but you have not searched widely enough in some areas. . [4.25-4.75]	You provide good evidence for most of your rationales; although you need to be more consistent with your level of research. [5.0-5.75]	You effectively linked quality research based evidence to justify each of your rationales. [5.75-6.0]
References						
Utilises relevant and contemporary references in response	**2**	No or inadequate references cited throughout your paper. References used are not contemporary or reflective of current practice. Many of your references are older than 5 years. Many of your references are web-based and are not peer reviewed. [0-0.75]	You have met the reference requirements at a basic level only. Some references used are older than 5 years. You have overused non peer-reviewed and web-based information, which does not lend credibility to your responses. [1.0-1.25]	References used reflect adequate research into the topic, although your selection indicates a need to use more evidence-based peer reviewed journals, and/or seek assistance with database/information retrieval. [1.25-1.5]	You have provided a relevant list of references; though you still need to ensure that the majority of references used are contemporary and peer reviewed. [1.5-1.75]	You have provided an excellent list of references; with the majority of references contemporary and peer reviewed. [1.75-2.0]
Intext referencing used throughout. Referencing formatted in accordance with APA requirements	**4**	Formatting of intext references incorrect and not according to APA requirements. Reference list is incomplete and is not formatted according to APA requirements. Your reference list does not meet the referencing requirements of the Discipline of Nursing & Midwifery. [0-2]	You have not been consistent in your citation of references throughout this paper. You have not formatted your intext referencing according to APA. Your reference list is not formatted correctly, and you must review the APA guidelines. [2.0-2.3]	Intext referencing is used throughout, but is inconsistent. This may include a need to review the use of quotes and paraphrasing intext, or incorrect use of et al. Your reference list does not adhere completely to APA requirements. [2.4-2.75]	Your use of intext referencing is good, and generally consistent. Reference list indicates good use of APA guidelines for most reference citations. Please read comments made throughout where improvements can be made. [2.8-3]	Your intext referencing and final reference list demonstrate a high level of consistency and are formatted correctly and according to APA guidelines. [3-4]
Total Marks awarded	**30**	**0-15**	**15-17**	**18-20**	**21-23.5**	**24-30**
Additional comments:		It is recommended that you review the available resources on referencing. You have not demonstrated adequate analysis of the topic. You must go to the Study and Learning Centre for assistance before submitting any written work. You must also take note of any guidelines and marking criteria as part of your assignment preparation.	Your response is generally adequate, but there are still a number of areas that can be improved upon. Review the comments throughout, and also review the available resources on referencing. To improve your mark in future, you are advised to seek assistance with the Study and Learning Centre before submitting any written work.	You have presented a satisfactory analysis of the topic. You are let down at times by your referencing inconsistencies and your underutilisation of key references on this topic. Please read the comments made throughout your paper; and consider them before submitting any written work in the future.	You have presented a good analysis of the topic overall; though there are still some areas where improvement can be made. You are advised to read the comments made throughout the paper. Good job.	Your submission is clearly structured and well organised. All referencing is consistent with guidelines. You have answered the topic question thoroughly, and provided a clear understanding of academic research requirements. Well done.

Lecturer: **Date:**

Additional Comments:

Final Mark:

Marker: