

[OP025] ECONOMIC IMPACT OF SURGICAL SITE INFECTION

Fiona Downie¹, Cambridge, United Kingdom , Philippa Clark¹, Cambridge, United Kingdom , Stefan Scholtes², Cambridge, United Kingdom , Anne Ninham³, Cambridge, United Kingdom , Ruth Kappelar⁴, Cambridge, United Kingdom , Margaret Gillham⁴, Cambridge, United Kingdom

¹*Papworth Hospital NHS Foundation Trust; Tissue Viability*

²*Centre for Health Leadership & Enterprise, Judge Business School, Cambridge University; Centre for Health Leadership & Enterprise*

³*Papworth Hospital NHS Foundation Trust; Infection Control*

⁴*Papworth Hospital NHS Foundation Trust; Clinical Microbiology*

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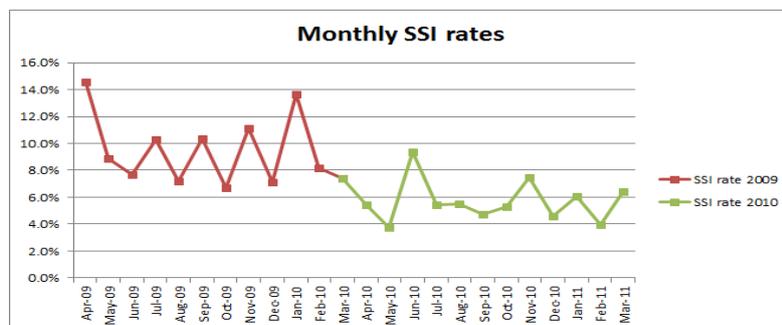
Free Paper Session: Health Economics and Outcome

Aim: This abstract presents the financial impact of surgical site infections (SSI) in coronary artery bypass (CABG) surgery in one UK cardiothoracic centre. The positive effects of process change on the rates of SSIs in CABG surgery are discussed.

Method: National surgical site infection surveillance scheme (Public Health England) methodology was employed to review all patients having CABG + or – other cardiac surgery performed between April 2009 and March 2011 (N=2384). Rate of SSIs were: Apr 2009-Mar 2010 = 9.3%; Apr 2010-Mar 2011 = 5.7%; overall SSI rate 7.6% (N= 181). Statistical analysis was carried out by a health economist.

Results / Discussion: A statistical model was used to control for common risk factors. Financial impact of SSI (risk-adjusted estimation) suggests that CABG SSI cases at the provider organisation during the analysed time period cost the NHS £600,000 p.a. (3% of total CABG cost), of which £375,000 are passed on to the provider.

Practice changes included: use of iodine-impregnated incision drapes; introduction of diabetic specialist nurse to address diabetic control; skin preparation change to 2% chlorhexidine in alcohol; change in antiseptic solution for preoperative showers; timing and dosing of antibiotics for surgical prophylaxis. These changes resulted in a fall in SSI rates (graph 1.).



Conclusion: Carrying out systematic and continuous SSI surveillance over a two year period, with the introduction of specific measures has led to a significant reduction in SSI rates within one UK cardiothoracic centre. This is associated with a cost saving.

[OP026] SURGICAL WOUND DEHISCENCE IN PATIENTS REFERRED TO A WESTERN AUSTRALIAN COMMUNITY NURSING SERVICE DURING 2010: TIME AND COST TO HEALING.

Kylie Sandy-Hodgetts¹, Perth, Australia , Keryln Carville¹, Perth, Australia , Gavin Leslie², Perth, Australia , Gill Lewin³, Perth, Australia , Delia Hendrie⁴, Perth, Australia

¹*School of Nursing and Midwifery, Curtin University*

²*Curtin University, ; School of Nursing and Midwifery*

³*Silver Chain Nursing Service*

⁴*School of Public Health, Curtin University*

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Aim: Surgical wound dehiscence (SWD) which is defined as the rupture or splitting apart of surgically closed margins is a post-operative complication that impairs wound healing, increases the length of hospital stay and impacts upon patient wellbeing and health care costs. Globally, the health costs associated with SWD are poorly reported and those reported are frequently associated with surgical site infection (SSI), rather than dehiscence of a non-microbial cause. The aim of this retrospective study was to describe and report on the costs and time to healing associated with patients who were referred to a community nursing service for treatment of an SWD following discharge from a Perth metropolitan hospital.

Method: A retrospective medical note audit was conducted on consenting community nursing patients following referral after hospital discharge. Data collected included but was not limited to; wound characteristics, nursing visits and dressing types. Time and cost to healing was determined through descriptive analysis.

Results / Discussion: Seventy patients were treated for an SWD, of which 55% were being treated for infection ($p=0.001$). The cost of treating the 70 patients with a SWD was in excess of AUD56, 000. Management of infection contributed to 67% of the overall cost. The study also identified issues related to diagnosis and reporting of SWD prevalence.

Conclusion: Patient related factors associated with SWD, its occurrence and characterisation can provide the clinician with new information when deciding appropriate patient centred care. Recommendations are made for future research into SWD.

[OP027] DEVELOPING A QUESTIONNAIRE TO THE STUDY FOR WOUND CARE UNITS IN SPAIN

Hector González de la Torre¹, Las Palmas, Spain , José Verdú Soriano², Alicante, Spain , Javier Soldevilla Ágreda³, Logroño, Spain

¹*Servicio Canario de Salud*

²*Universidad de Alicante*

³*Gneaupp*

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Aim: Develop a questionnaire to obtain information on the structure of wounds care units located in Spain.

Method: For the design was used Delphi technique. Principal researcher recruited ten experts for their professional / curricular profile. The design of the questionnaire consisted of the following rounds:

Round 1: Principal researcher drafted a questionnaire sent to experts. These annotations made openly, sending them to the principal investigator.

Round 2: Principal researcher reviewed the entries and modified the questionnaire according to these and sent the new version. The experts made a revision of giving each item a vote of "valid" or "invalid", bringing changes to items with "invalid" vote.

Round 3: The item you got 2 or more votes "invalid" in round 2 were modified. These items were forwarded to experts for a new evaluation and vote.

Final Round: The experts rated each item's questionnaire to establish the content validity for which Polit and Hungler's test was used, which takes into account two criteria: Pertinence and relevance. Both dimensions were evaluated with response categories: 1 not pertinence 2 little bit pertinence 3 pertinence 4 highly pertinence 1 irrelevant 2 little bit relevant 3 relevant 4 very relevant.

Results / Discussion: A questionnaire consisting of 49 items divided into four spheres was obtained. Indexes content validity for each item of the instrument, indices of validity of individual content for each expert and Index general content validity of the instrument for both dimensions were calculated. The overall CVI of the questionnaire was 0.96 for pertinence / 0.94 for relevance.

Conclusion: The questionnaire obtained has sufficient content validity for helpful information of wounds care units.

[OP028] POTENTIAL COST SAVINGS FROM USING PROPHYLACTIC DRESSINGS TO PREVENT HOSPITAL-ACQUIRED PRESSURE ULCERS IN AUSTRALIA

Nick Santamaria¹, Melbourne, Australia , Hunter Santamaria², Melbourne, Australia

¹*University of Melbourne & Royal Melbourne Hospital; Nursing*

²*Tci Capital Advisers*

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Free Paper Session: Health Economics and Outcome

Aim: To estimate the potential cost saving to the Australian health-care system of introducing the use of prophylactic dressings to prevent hospital-acquired pressure ulcers (PUs) for patients with a high-risk developing a PU.

Method: We estimated the costs of pressure ulceration based on conservative estimates of an incidence rate of 13% within 10% of the total admitted Australian patient population. Results from a recent large randomized control trial of prophylactic dressing used to prevent PUs in high-risk patients were then extrapolated to this population to derive a potential national cost/benefit calculation.

Results / Discussion: Our estimate revealed that within the high-risk population of acute hospitals, more than 71,000 patients could be expected to develop a PU annually costing AU\$77,800,000 (£43,000,000).

Whereas by implementing a national PU prevention initiative based on the use of prophylactic multilayer silicone foam dressings for high-risk patients, an annual saving of AU\$34,800,000 (£19,700,000) could be achieved, which represents a cost benefit of 55% to the Australian health-care system.

Conclusion: Our estimate of the potential cost benefit of implementing the use of prophylactic dressings to prevent hospital acquired PUs in high-risk patients uses conservative estimates of both the incidence rates of ulceration and of treatment costs. However, this is also based on one of the largest reported randomized control trials of this technique to prevent PUs. We believe that our modeling is robust yet requires replication in other countries with different health-care systems and costing models.

[OP029] RAISING QUALITY AND IMPROVING SAFETY IN CHRONIC WOUND CARE

Jodie Jordan¹, Birmingham, United Kingdom , Andy Kerr², Loughborough, United Kingdom , Susan Durrant³, Wolverhampton, United Kingdom

¹Birmingham and Solihull Mental Health NHS Foundation; Tissue Viability

²3m

³Rwh; Tissue Viability

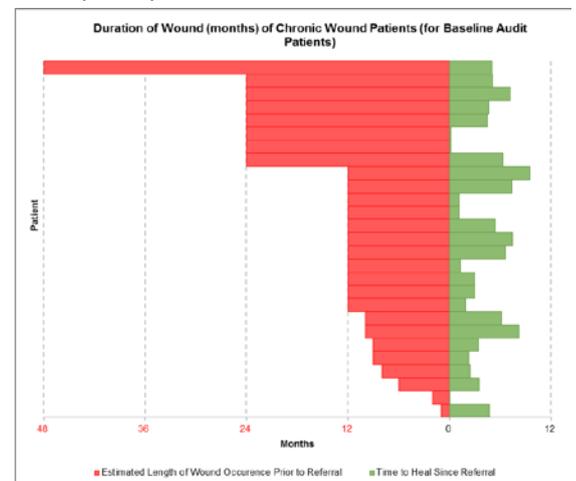
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Free Paper Session: Health Economics and Outcome

Aim: The aims of this project were to establish a baseline for the number of chronic wounds and to ensure that patients with chronic wounds have systematic exemplar management through the use of pathways. The clinical objective was to achieve a 30% reduction in the number of chronic wounds identified in the baseline audit.

Method: To develop a full understanding of the prevalence of chronic wounds a chronic wound baseline audit was undertaken between April and May 2012. Following the initial baseline audit a method of systematically recording the chronic wounds was established to enable monitoring of those patients that remained from the baseline audit and any new chronic wounds that were seen by the Chronic Wound Team (CWT).

Results / Discussion: 472 forms were completed, the completed forms equate to 472 wounds (from 452 patients), 13 patients had multiple wounds, mean 1.04 wounds per patient. Leg ulcers were the highest chronic wound, accounting for 26% of all chronic wounds. Wounds that had been present for 12 months or more accounted for 26% (136 wounds). The graph shows the total duration of patients wounds split by time to prior, and following, referral to the Chronic Wound Team.



Conclusion: Data demonstrates that 39% of wounds were healed with input from the CWT and a further 42% were reported as improving. The local burden of chronic wounds was established which enabled initial cohorts of patients to be assessed, their management supported and pathways have been developed and disseminated.

[OP030] SUCCESSFUL LONG-TERM NEGATIVE PRESSURE WOUND TREATMENT OF MULTI RESISTANT GRAM-NEGATIVE DEEP STERNAL WOUND INFECTION

Marco Valerio Montibello¹, Naples, Italy , Marisa De Feo², Naples, Italy

¹V. Monaldi Hospital ; Cardiothoracic Surgery and Heart Transplant

²Second University of Naples; Cardiothoracic Surgery

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Free Paper Session: Health Economics and Outcome

Aim: To review our experience in the treatments of deep sternal wound infections (DSWI), focusing on gram-negative bacteria aetiology.

Method: Between October 2004 and February 2014, 8488 patients underwent major cardiac surgery operations through full median sternotomy at our institution; 71 patients developed post-cardiotomy DSWI (0,89% I). All of them were primarily treated by topical negative pressure*. In 25 patients the aetiology was represented by gram-negative bacteria (GNB) (35,2%). The most frequent pathogens were: *E. Coli* and *Acinetobacter Baumannii* (44% and 29%). Mean age was 68±7 years, with a mean EUROSCORE of 6 (3.5 – 8). The mean interval between operation and infection was 20±12 days, with no statistically significant difference between the other pathogens DSWI observed.

Results / Discussion: We compared GNB DSWI (N=25pts) with other pathogens DSWI (N=46pts) and we observed one death due to multi-organ failure (4% - 1,7% overall mortality) in the GNB group. The median healing time observed was significantly longer in the GNB group (28±30 days vs 17±11days) among the other pathogens group, DSWI recurred in 6 cases following vacuum therapy in the GNB vs 1 in the other pathogens group. In all recurrence cases, an *Acinetobacter Baumannii* was among the causative micro-organisms. Recurrence was treated by simply prolonging topical negative pressure*, even at home with periodic outpatient dressings and controls. Hyperbaric therapy was associated to NPWT successfully in 2 cases.

Conclusion: Gram-negative DSWI showed a more aggressive infection, especially in the patients with *Acinetobacter b.* aetiology, usually responsible for a secondary colonization of the wound, with consequent longer healing time. The negative pressure wound treatment represented the destination therapy even more in this subset of infections.

* Vacuum therapy

[OP031] HOW TO COMBINE CLINICAL DATA AND A COST EFFECTIVE ARGUMENT TO ACHIEVE FUNDING FOR ADDITIONAL NEGATIVE PRESSURE WOUND THERAPY (NPWT)* DEVICES

Kumal Rajpaul¹, London, United Kingdom , Penny Henderson², West Sussex, United Kingdom

¹*Kings College Hospital NHS Foundation Trust*

²*Acelity™*

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Free Paper Session: Health Economics and Outcome

Aim: To secure additional funding for NPWT devices by developing a strong clinical argument whilst considering cost effective implications.

Method: Analyzing and reviewing current practices on the delivery of NPWT across an acute hospital to ascertain several elements:

- Did we have uniformity across the trust?
- What were the average usage figures and were there any significant trends?
- Were there any disparities?
- Were there any changes in the population group that would impact on the requirement of NPWT in the future?
- What savings if any could NPWT offer over standard care?

Results / Discussion: During an in-depth analysis, it was apparent that although an effective service had been delivered by utilizing the equipment library there were several concerns, which would impact on this in the future.

Average usage figures showed the requirement for NPWT devices was increasing and ad hoc rental usage reflected this increase. This was due to an increase in bed numbers and occupancy. This trend would result in a rise of rentals and associated cost.

In 2013/14 it was identified that on 15 occasions there were no NPWT devices available resulting in delayed treatment.

National and local figures show increases in co-morbidity factors associated with poor healing hence increasing the use of NPWT would address clinical needs as well as offer potential cost savings.

Conclusion: Through the development of a strong business case, the tissue viability service secured funding for additional NPWT devices.

*Vacuum Assisted Closure (VAC)