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Welcome to the last hard copy of The HITH Review. All our future editions will only be available in electronic format on the ACA Web page as with the ACA Newsletter. For those currently receiving a hard copy and wishing to be included on our electronic mailing list please forward your e-mail address to aca@alfred.org.au. Electronic notifications of new editions will be forwarded to those on our electronic mailing list.

Several interesting articles are listed in this issue of The HITH Review and unfortunately due to space constraints we have only included commentaries on a very small number of these. In particular I would like to draw the reader's attention to the articles on continuous antibiotic infusions and the articles on anticoagulation listed under "Venous Thrombosis".

Most of the articles listed in this review are available either from libraries in Australia or journal websites. Copies of articles with an asterisk (★) required for educational or research purposes can be requested from ACA when they are not available from your library. When ordering articles from ACA please use the order form available on our website.

We appreciate receiving your feedback on The HITH Review and would particularly welcome any contributions.

The support of the Acute Health Division, Department of Human Services is gratefully acknowledged.

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Continuous infusion under the microscope

Alex Padiglione

Grant EM, Kuti JL, Nicolau DP et al. *Clinical efficacy and pharmacoeconomics of a continuous-infusion piperacillin-tazobactam program in a large community teaching hospital*. *Pharmacother* 2002; 22:471-83. ★

This prospective, open-label controlled study compared clinical, microbiologic, and economic outcomes of continuous versus intermittent administration of piperacillin-tazobactam. Patients had similar demographics and infections. Forty-seven of 98 patients from a community teaching hospital prescribed intermittent infusion piperacillin-tazobactam were switched to continuous infusion and the others continued with intermittent infusion. Dosages varied in accordance with the type of infection and each patient's renal function.

Clinical success rates were 94% for the continuous-infusion group and 82% for the intermittent-infusion group ($p=0.081$). Microbiologic success rates were 89% and 73% respectively ($p=0.092$). Days to normalisation of fever were significantly lower ($p=0.012$) in the continuous-infusion group (1.2 ± 0.8 days) than in the intermittent-infusion group (2.4 ± 1.5 days). Level 1 and level 2 costs/patient were both reduced by continuous infusion, although the difference was statistically significant only for level 2 costs ($\$399.38 \pm 407.22$ vs $\$523.49 \pm 526.85$, $p=0.028$). Continuous infusion of piperacillin-tazobactam provided equivalent clinical and microbiologic outcomes to intermittent infusion, significantly shortened the time to temperature normalisation and offered a significant reduction in level 2 expenditures.

comment Beta-lactam antibiotics, such as penicillins, kill bacteria whilst their concentration is above a critical level (the Mean Inhibitory Concentration, or MIC). Once the level of the drug drops below this level, bacteria can start to regrow. Hence it makes sense to aim to keep the concentration above the MIC for as much of the day as practicable. One of the most effective ways of keeping high levels of drug over longer periods is to increase the frequency within which the drug is administered (as opposed to increasing the dose, which usually only alters the time above MIC marginally). The

ultimate form of frequent dosing is continuous infusion (CI). In addition, with modern pumps, continuous infusions can also be a more time effective manner in which to administer antibiotics (hence the interest in CI in the HITH setting for drugs with good stability).

However to date there has been a paucity of clinical data on which to base recommendations. This paper adds to our knowledge in a number of ways. It shows that CI piperacillin-tazobactam (Tazocinâ) is at least equivalent to traditional intermittent dosing schedules for a variety of infections (including respiratory, skin/soft tissue, intra-abdominal and others). Indeed there was a trend to better outcomes, at least on some outcome measures (though the study was generally underpowered to draw definitive conclusions about superiority). Cost effectiveness suggested it was also at least as good as conventional dosing.

There are a few caveats to this study. The main one is the unblinded nature of the study. The patients in the 2 groups looked well matched, and in fact if anything there were subtle differences which may have been expected to result in a worse prognosis in the CI group.

The CI group was given a loading dose (to get these patients up to therapeutic levels quickly). However the conventional dosing group were not, meaning that this group may have taken significantly longer to reach a therapeutic "steady state". Whilst this is fine from the study point of view (as it mimics what happens in real life where we rarely give loading doses, for reasons I don't quite understand) it would be interesting to know what effect a loading dose would have had in the conventional therapy group.

Only a minority (16) of the CI patients had a serum level checked. Although all were "therapeutic", there was a wide variation (around six fold) in levels. None of the conventional dosing group had trough levels checked, which would have been useful information, especially in looking at the treatment failures (ie were they related to low levels).

In addition, some patients were excluded because of significant comorbidities– in particular neutropenia or significant renal impairment.

Such groups need to be specifically studied before conclusions can be drawn about the efficacy and safety in these patients.

Baririan N, Chanteux H, Viaene E et al. *Stability and compatibility of cefepime in comparison with ceftazidime for potential administration by continuous infusion under conditions pertinent to ambulatory treatment of cystic fibrosis patients and to administration in intensive care units.* J Antimicrob Chemother 2003; 51:651-8. ★

Cefepime was examined for stability, potential degradation products and compatibility with other drugs under conditions mimicking its potential use by continuous infusion in cystic fibrosis and intensive care patients (5–12% w/v solutions; temperatures from 20 to 37°C; 1 h contact at 25°C with other intravenous drugs frequently co-administered to these patients). Ceftazidime was used as a comparator. Based on a 10% maximum limit of degradation, cefepime can be considered stable for up to 24 h at 25°C, 14 h at 30°C, and for <10 h at 37°C. Cefepime released so far unidentified degradation products if maintained at >30°C for >12 h as shown from a marked increase in pH and the development of a strong red–purple colour. Incompatibilities were observed with erythromycin, propofol, midazolam, phenytoin, piritramide, theophylline, nicardipine, N-acetylcysteine and a concentrated solution of dobutamine. They concluded that: (i) cefepime cannot be used safely by continuous infusion if containers are kept for more than a few hours at 37°C (as will be the case for cystic fibrosis patients if using portable pumps carried under clothes); (ii) caution must be exercised in intensive care patients if the temperature and co-administration of other drugs is not kept under tight control. The nature and safety of the cefepime degradation products needs further investigation.

comment The stability and compatibility of cefepime is pertinent to ambulatory treatment of cystic fibrosis patients.

Cefepime is similar to ceftazidime, but has a longer half-life and slightly broader spectrum. It is commonly used for treatment of CF and febrile neutropenia. Being a beta lactam, it also displays time dependent killing, and hence has been considered for administration by CI. This study however provides some compelling reasons why it would not be suitable, in particular related to the instability of the drug in solution.

Whilst ceftazidime remained >95% stable for up to 24 hrs at 20°C, cefepime showed at least 10% degradation under these conditions. Even modest increases in temperature (for example to 25°C, such as might happen if the drug were in a pump carried under the patients clothing) resulted in even greater instability.

A problem with the study is that the authors did not characterise the nature of the degradation products, though in the discussion they precis some other data on this topic.

The study is a useful reminder that a full range of laboratory and clinical studies need to be done before new treatments are introduced into clinical practice.

COPD management at home

Nick Santamaria

Ojoo JC, Moon T, McGlone S et al. *Patients' and carers' preferences in two models of care for acute exacerbations of COPD: results of a randomised controlled trial.* Thorax 2002; 57:167-9. ★

Patients with an acute exacerbation of chronic obstructive pulmonary disease (COPD) were randomised to either hospital at home (HITH) or inpatient management, and patient and carer preferred site of management and satisfaction with care was determined using a questionnaire.

Of 60 patients recruited, 30 were randomised to receive HITH care. Retrospective patient preference for HITH care was 96.3% in the domiciliary arm and 59.3% in the conventional arm; carer preference figures were 85.7% and 42.9%, respectively. There was a higher preference for domiciliary care by both patients and carers in the HITH arm than in the inpatient arm ($p=0.001$ and $p=0.01$, respectively). Patients recorded equal satisfaction with care in the two arms (88.1% in the conventional arm, 91.7% in the domiciliary arm); carer scores were 91.3% and 91.9%, respectively.

Both patients and carers were significantly more likely to prefer domiciliary care if they were in the HITH arm. Since patients had to be willing to be looked after at home, both patients' and carers' perceptions of the benefits of HITH care were reinforced by their experience. HITH care of acute exacerbations of COPD is the preferred option in suitable patients.

This study presents some interesting findings regarding the responses of both patients and carers to the treatment of acute exacerbation of COPD through a HITH program. This retrospective study demonstrates a high level of patient and carer satisfaction with HITH care. It is not clear as to why the data were collected retrospectively and whether the results would have been different if the data were collected prospectively. Given that COPD patients often present with multiple physical and emotional comorbidities it would have been interesting to know these demographic profiles of each group. The issue of carer strain/stress was not addressed in this study and would be an interesting future topic as there is some evidence that preference for HITH by carers is independent of self reported carer stress. This is an important issue because of the age profile of the carers and their increased likelihood of chronic illness. The clinical outcomes for both groups were similar suggesting that the HITH management of COPD is safe and efficacious.

Please note that although this article was listed in the previous HITH Review we had omitted the commentary. Other relevant COPD articles from our database include:

Cotton M et al. Early discharge for patients with exacerbations of chronic obstructive pulmonary disease: a randomised controlled trial. *Thorax* 2000; 55:902-6.

Davies L et al. "Hospital at home" versus hospital care in patients with exacerbations of chronic obstructive pulmonary disease: Prospective randomised controlled trial. *Br Med J* 2000; 321: 1265-8.

Farrero E et al. Impact of a hospital- based home care program on the management of COPD patients receiving long term oxygen therapy. *Chest* 2001; 119:364-9.

Hermiz O et al. Randomised controlled trial of home based care of patients with chronic obstructive pulmonary disease. *Br Med J* 2002; 325:938-40.

Skwarski E et al. Randomised controlled trial of supported discharge in patients with exacerbations of chronic obstructive pulmonary disease. *Thorax* 2000; 55:907-12.

Wound mangement

Nick Santamaria

Baranoski S, Thimsen K. OASIS skin and wound integumentary assessment items. Applying the WOCN guidance document. *Home Healthcare Nurse* 2003; (Supp 1):3-15. ★

This is a very useful supplement for the wound care practitioner. The basis for the supplement is the need to document specific wound characteristic within the OASIS system in the USA. Regardless of the background for the supplement, the content, organisation and quality of the supporting wound images provide the reader with a concise and well- structured guide for wound assessment. Risk assessment tools are briefly discussed, as is systematic skin assessment. Assessment parameters assist the wound care practitioner to follow a standardised and comprehensive process of wound assessment.

Areas covered include: Wound orientation, Depth, Undermining and Tunnelling, Wound Edges and Peri Wound Margin. Pressure ulcers are covered by linking staging of the ulcer with clear images to illustrate the specific features of the ulcer. Each stage is accompanied by "visual cues" in the accompanying images.

The second half of the supplement is perhaps a little less useful to the experienced practitioner and covers stasis ulcers and provides some points of differentiation to arterial ulcers. This section would probably be better suited to the beginning wound care practitioner due to the brevity of the material however, the reader needs to remember that the intent of the supplement is to assist nurses in the documentation process rather than providing an in depth treatment of the subject.

Beneficial professional carer behaviours

Jenny Silvers

Burt S, Heineken J. *Connecting with older clients*. *Home Healthcare Nurse* 2003; 21:108-14. ★

Using case studies the authors have identified eight care providers (professional carers) behaviours that

are essential for a home care agency to be successful. Care giving relationships can fail because of misunderstandings or differences in expectations between careproviders and clients. Relationships can also succeed if there is cooperation and shared understanding among the care provider, the family and the client, with going the “extra mile” successful and mutually satisfying relationships will develop. The behaviours discussed are being

- Dependable,
- Setting clear work expectations and monitoring performance,
- Providing for client safety,
- Accommodating client needs while establishing realistic role boundaries,
- Knowing how to avoid being caught in the middle between family and client,
- Managing unacceptable behaviour – the verbally abusive and the sexually acting out client, using self – initiating activities,
- Going the extra mile.

The article highlights the disappointments that care providers experience if clients did not approve of particular aspects of their care but fail to communicate the dissatisfaction. The other side is the great satisfaction for both the care provider and client when a successful match is made and relationships thrive.

Staff safety

Jenny Silvers

Clark K. *Customer satisfaction and workplace safety.* Home Healthcare Nurse 2003; 21:126-7. ★

comment Customer satisfaction and workplace are important issues frequently asked by nurses. This article is written as a series of questions and answers. The answers given highlight how important respecting the client, especially in regard to notifying the client if the home visit is delayed and that the respect that should be given to a client and their house rules. Clients and families like to be kept informed therefore it is important to document information quickly and accurately regarding the patients condition, progress and treatment changes. Nurses should not be exposed to situations that put them at risk of a back or shoulder injury. It must be considered If the nurse is at risk the appropriateness of initiating or continuing home care should be considered. The same applies

for car safety where the emphasis is to stay alert and trust your instincts.

Relevant abstracts from Medline and Cinahl

Frey P, Stinson T, Siston A et al. *Lack of caregivers limits use of outpatient hematopoietic stem cell transplant program.* Bone Marrow Transplantation 2002; 30:741-8. ★

Direct and indirect medical costs and quality of life associated with inpatient vs outpatient autologous hematopoietic stem cell transplantation (AuHSCT) were compared in 21 sequential outpatients and 26 inpatients. Eligibility for outpatient transplantation. included breast cancer or hematologic malignancy, insurance coverage for the outpatient procedure, one to three carers available to provide 24 h coverage, and no significant comorbidities. Controls included patients without carers or insurance coverage for outpatient transplant who were willing to participate in the quality of life portion of the study and to permit review of their hospital and billing records. Approximately half of all 139 prospective outpatient candidates were ineligible because they lacked a carer. Most commonly, the patient without a carer was single or widowed or their family and friends were needed to provide childcare. Most carers were college educated from families with incomes greater than \$US80,000. Indirect costs to the carers totalled a median of \$2,520 (range \$684-\$4,508), with the majority attributed to lost ‘opportunity costs’. Overall, there were significant differences in the total costs of treatment for inpatient vs outpatients (\$40,985 vs \$29,210, p<0.01). In general, no significant differences were detected between inpatient and outpatient scores on quality of life measures. Although significant cost savings were associated with outpatient transplantation, this approach was applicable to only half of otherwise eligible candidates because of a lack of carers. The financial burden associated with the caretaking role may underlie this finding.

Svahn B-M, Remberger M, Myrback K-E et al. *Home care during pancytopenic phase after allogeneic hematopoietic stem cell transplantation is advantageous compared with hospital care.* Blood 2002; 100:4317-24. ★

After myeloablative treatment and allogeneic stem cell transplantation (SCT), patients are kept in isolation rooms in the hospital to prevent neutropenic infections. During a 3-year period, patients were given the option of treatment at home after SCT. Daily visits by an experienced nurse and daily phone calls from the unit physician were included in the protocol. This study compared 36 patients who wished to be treated at home with 18 patients who chose hospital care (control group 1). A matched control group of 36 patients treated in the hospital served as control group 2. All home care

patients had hematologic malignancies and 19 were in first remission or first chronic phase. The patients spent a median of 16 days at home (range, 0-26 days). Patients spent a median of 4 days (range, 0-39 days) in the hospital before discharge. In the multivariate analysis, the home care patients were discharged earlier (relative risk [RR] 0.33, $p=0.03$), had fewer days on total parenteral nutrition (RR 0.24, $p<0.01$), less acute graft-versus-host disease (GVHD) grades I-IV (RR 0.25, $p=0.01$), lower transplantation-related mortality rates (RR 0.22, $p=0.04$), and lower costs (RR 0.37, $p<0.05$), compared with the controls treated in the hospital. The 2-year survival rates were 70% in the home care group versus 51% and 57% (not significant) in the 2 control groups, respectively ($P<0.03$). Therefore home care after SCT was safe and advantageous compared with hospital care.

Riethmueller J, Busch A, Damm V et al. *Home and hospital antibiotic treatment prove similarly effective in cystic fibrosis*. *Infection* 2002; 30:387-91. ★

A prospective clinical study was carried out to compare home and hospital intravenous (iv) antibiotic treatment in cystic fibrosis (CF) patients with chronic *P. aeruginosa* infection who were not having an exacerbation. 28 consecutive hospital courses (group 1) were compared with 30 home care courses (group 2). Both groups had chest physiotherapy and nutrition therapy. Antibiotic treatment in both groups consisted of tobramycin and ceftazidime, with equal dosage and application. Groups were compared using clinical, inflammatory and microbiological parameters.

There was a significant difference ($p\leq 0.05$) in peripheral leukocyte counts, forced expiratory volume in 1 sec (FEV1; $p\leq 0.05$), weight for height ($p\leq 0.005$) and for *Pseudomonas* sputum counts ($p\leq 0.005$) before and after therapy in both groups. There was no statistical difference between the two groups for any of the parameters tested. It is concluded that, when exacerbations are excluded, home iv therapy is an effective therapeutic option in CF. Long-term comparison is still needed to effectively evaluate the pros and cons of home and hospital antibiotic treatment in CF.

Kovacs MJ, Rodger M, Anderson DR et al. *Comparison of 10-mg and 5-mg warfarin initiation nomograms together with low-molecular-weight heparin for outpatient treatment of acute venous thromboembolism*. *Ann Intern Med* 2003; 138:714-9. ★

This randomised, controlled clinical trial compared a 10-mg dosing nomogram with a 5-mg nomogram for warfarin initiation in 201 consecutive patients with confirmed acute venous thromboembolism attending four tertiary care hospitals and managed by outpatient services. All patients were treated with subcutaneous low-molecular-weight heparin (LMWH) for a minimum of 5 days until a therapeutic international normalized

ratio (INR) was achieved. Patients were randomly assigned to initially receive a 10-mg or 5-mg dose of warfarin (104 and 97 patients respectively). Demographic characteristics of both groups were similar.

Patients in the 10-mg group achieved therapeutic INR 1.4 days earlier than the 5-mg group ($P<0.001$). Eighty-three percent of patients in the 10-mg group achieved a therapeutic INR by day 5 versus 46% in the 5-mg group ($P<0.001$). Fewer INR assessments were performed in the 10-mg group than in the 5-mg group (8.1 vs. 9.1; $P=0.04$). There were no significant differences between the two groups in recurrent events, major bleeding, and survival however the study was underpowered for clinical endpoints. There was also no significant difference in the number of INR measurements >5.0 .

The study indicates that the 10-mg warfarin initiation nomogram allows a more rapid achievement of a therapeutic INR to the 5-mg nomogram.

List of Medline, Cinahl and other relevant published articles

Accreditation

Cesar T. *The newest home care accreditation agency - ACHC*. *Home Healthcare Nurse* 2002; 20:767-8. ★

Bone Marrow Transplantation

Frey P, Stinson T, Siston A et al. *Lack of caregivers limits use of outpatient hematopoietic stem cell transplant program*. *Bone Marrow Transplantation* 2002; 30:741-8. ★

Svahn B-M, Remberger M, Myrback K-E et al. *Home care during pancytopenic phase after allogeneic hematopoietic stem cell transplantation is advantageous compared with hospital care*. *Blood* 2002; 100:4317-24. ★

Carers

Frey P, Stinson T, Siston A et al. *Lack of caregivers limits use of outpatient hematopoietic stem cell transplant program*. *Bone Marrow Transplantation* 2002; 30:741-8. ★

Chronic Obstructive Pulmonary Disease

Ojoo JC, Moon T, McGlone S et al. *Patients' and carers' preferences in two models of care for acute exacerbations of COPD: results of a randomised controlled trial*. *Thorax* 2002; 57:167-9. ★

Continuous Infusions & Drug Stability

Grant EM, Kuti JL, Nicolau DP et al. *Clinical efficacy and pharmacoeconomics of a continuous-infusion piperacillin-tazobactam program in a large community teaching hospital*. *Pharmacother* 2002; 22:471-83. ★

Baririan N, Chanteux H, Viaene E et al. *Stability and compatibility of cefepime in comparison with ceftazidime for potential administration by continuous*

infusion under conditions pertinent to ambulatory treatment of cystic fibrosis patients and to administration in intensive care units. J Antimicrob Chemother 2003; 51:651-8. ★

Taylor M, Rayner C. *Vancomycin: continuously used, intermittently debated.* J Pharm Practice Res 2003; 33(1):18-19. ★

Viaene E, Chanteux H, Servais H et al. *Comparative stability studies of antipseudomonal b-Lactams for potential administration through portable elastomeric pumps (home therapy for cystic fibrosis patients) and motor-operated syringes (intensive care units).* Antimicrob Agents Chemother 2002; 46:2327-32. ★

Cystic Fibrosis

Riethmueller J, Busch A, Damm V et al. *Home and hospital antibiotic treatment prove similarly effective in cystic fibrosis.* Infection 2002; 30:387-91. ★

Drug Therapy & Adverse Events

Audette CM, Triller DM, Hamilton R et al. *Classifying drug-related problems in home care.* Am J Health-Syst Pharm 2002; 59:2407-9. ★

Johnson SL, Unsworth J, Gompels MM. *Adrenaline given outside the context of life threatening allergic reactions.* Br Med J 2003; 326:589-90. ★

Elderly Patients

Burt S, Heineken J. *Connecting with older clients.* Home Healthcare Nurse 2003; 21:108-14. ★

Lim WK, Lambert SF, Gray LC. *Effectiveness of case management and post-acute services in older people after hospital discharge.* Med J Aust 2003; 178:262-6. ★

Heart Failure

Quaglietti S, Lovett S, Hawthorne C et al. *Management of the patient with congestive heart failure in the home care and palliative care setting.* Home Health Care Consultant November 2002; 14-21. www.mmhc.com/hhcc/featured/PharmPractice.html ★

Infections and Antibiotic Therapy

Legua P, Lema J, Moll J et al. *Safety and local tolerability of intramuscularly administered ertapenem diluted in lidocaine: a prospective, randomised, double-blind study versus intramuscular ceftriaxone.* Clin Therapeutics 2002; 24:434-44. ★

Nathwani D, Barlow GD, Ajdukiewicz K et al. *Cost-minimization analysis and audit of antibiotic management of bone and joint infections with ambulatory teicoplanin, in-patient care or outpatient oral linezolid therapy.* J Antimicrobial Chemother 2003; 51:391-6. ★

Riethmueller J, Busch A, Damm V et al. *Home and hospital antibiotic treatment prove similarly effective in cystic fibrosis.* Infection 2002; 30:387-91. ★

Steinmetz D, Edelstein H, Berkovits E, Raz R. *Home intravenous antibiotic therapy for osteomyelitis patients.* [Hebrew] Harefuah 2002; 141:439-41.

Sulkes DJ, Scott IU, Flynn HW et al. *Evaluation outpatient versus inpatient costs in endophthalmitis management.* Retina 2002; 22:747-51. ★

Line Complications

Guidelines address prevention of catheter-related bloodstream infections. Am J Health-Syst Pharm 2002; 59: 1817-8.

Gorski L. *Central venous access device occlusions. Part 1: Thrombotic causes & treatment.* Home Healthcare Nurse 2003; 21:115-21. ★

Gorski, L. *Central venous access device occlusions. Part 2: nonthrombotic causes and treatment.* Home Healthcare Nurse 2003; 21:168-71. ★

Miscellaneous

Otto S. *Understanding the immune system. Overview for infusion assessment.* J Infusion Nursing 2003; 26:79-85. ★

Saladow J. *Pump technology relatively static as providers confront economic issues.* Infusion 2002; 8:32-4. ★

Yantis M. *Assisting patients using positive airway pressure therapy.* Home Healthcare Nurse 2003; 21:160-5. ★

Nursing

Hunter M. *Development for a vascular access team in an acute care setting.* J Infusion Nursing 2003; 26:86-91. ★

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Sitzman KL, Pett MA, Bloswick DS. *An exploratory study of motor vehicle use in home visiting nurses.* Home Healthcare Nurse 2002; 20:784-92. ★

Paediatric

Doellman D. *Pharmacological versus nonpharmacological techniques in reducing venipuncture psychological trauma in pediatric patients.* J Infusion Nursing 2003; 26:103-9. ★

Pain Management

Duggleby W. *Helping Hispanic/Latino home health patients manage their pain.* Home Healthcare Nurse 2003; 21:174-9. ★

Patient Satisfaction

Clark K. *Customer satisfaction and workplace safety.* Home Healthcare Nurse 2003; 21:126-7. ★

Pharmacy Practice

Worthington S, Murdock AM. *Emerging role of pharmacy practice in home health care*. Home Healthcare Consultant www.mmhc.com/hhcc/featured/PharmPractice.html ★

Phlebotomy

Ernst DJ, Ernst C. *Phlebotomy tools of the trade: part 3 Alternative sites for drawing blood*. Home Healthcare Nurse 2003; 21:156-8. ★

Quality, Outcomes, Indicators and Standards

Friedman MM. *It's a leaner, meaner year. What's new in the 2003 Joint Commission Home Care and Hospice Standards: part 1*. Home Healthcare Nurse 2003; 21:90-3. ★

Friedman MM. *What's new in the 2003 joint commission? Home care and hospice standards: part 2*. Home Healthcare Nurse 2003; 21:152-5. ★

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Panis LJGG, Gooskens M, Verheggen FWSM et al. *Predictors of inappropriate hospital stay: a clinical case study*. 2003; 15: 57-66. ★

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Safety

Clark K. *Customer satisfaction and workplace safety*. Home Healthcare Nurse 2003; 21:126-7. ★

Owen BD, Skalitsky Staehler K. *Decreasing back stress in home care*. Home Healthcare Nurse 2003; 21:181-6. ★

Telemedicine and Technology

Dullea C. *Benchmarking goes high tech*. Infusion 2002; 8:26-8. ★

Vascular Access Devices

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Venous Thrombosis

Ansell JE. *The perioperative management of warfarin therapy*. Arch Intern Med 2003; 163:881-2. ★

Blann AD, Fitzmaurice DA, Lip GYH. *ABC of antithrombotic therapy. Anticoagulation in hospitals and general practice*. Br Med J 2003; 326:153-6. ★

Boucher M, Rodger M, Johnson JA, Tierney M. *Shifting from inpatient to outpatient treatment of deep vein thrombosis in a tertiary care centre: a cost-minimisation analysis*. Pharmacother 2003; 23:301-9. ★

Dunn AS, Turpie AGG. *Perioperative management of patients receiving oral anticoagulants*. Arch Intern Med 2003; 163:901-8. ★

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Kahn SR, Azoulay L, Hirsch A et al. *Acute effects of exercise in patients with previous deep vein thrombosis. Impact of postthrombotic syndrome*. Chest 2003 123:399-405. ★

Kovacs MJ, Rodger M, Anderson DR et al. *Comparison of 10-mg and 5-mg warfarin initiation nomograms together with low-molecular-weight heparin for outpatient treatment of acute venous thromboembolism*. Ann Intern Med 2003; 138:714-9. ★

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Schafer AI. *Warfarin for venous thromboembolism-walking the dosing tightrope*. New Eng J Med 2003; 348:1478-9. ★

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Wound Management

Baranoski S, Thimsen K. *OASIS skin and wound integumentary assessment items. Applying the WOCN guidance document*. Home Healthcare Nurse 2003; (Supp 1):3-15. ★

Fosnocht D, Swanson E. *Wound and Skin Infections. Admission and Discharge Decisions in Emergency Medicine*. L. Frank and K. Jobe: 136-138. 2002

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Whilst every effort is made to reliably report the data and comments from the journal articles reviewed, no responsibility is taken for the accuracy of articles appearing in The HITH Review, and readers are advised to refer to the original papers for full details of the research.