

## Royal Prince Alfred Hospital Patient Observation (Vital Signs) Policy - Adult

**Document No:** RPAH\_PD2010\_041

**Functional Sub-Group:** Clinical Governance  
Corporate Governance

**Summary:** Vital sign assessment is essential in the determination of a patient's health status. Careful measurement techniques and knowledge of the normal range in vital signs for a particular patient will ensure that patients at RPAH are suitably monitored to enable clinicians to carefully monitor therapy and prevent adverse events. An alteration in a patient's vital signs can provide objective evidence of the body's response to physical and psychological stress or changes in physiological function. Vital sign monitoring is a core function of the Registered Nurse/Midwife or Enrolled Nurse at RPAH.

**Approved by:** Ken Cahill, Executive Director RPAH

**Publication (Issue) Date:** June 2010

**Next Review Date:** June 2014

**Replaces Existing Policy:** Patient Observations (Vital Signs) Policy - Adult  
RPAH\_PD2010\_002; Patient Rounds on Nightshift  
Conducted by Nightstaff RPAH\_PD2007\_008

**Previous Review Dates:** 2007; Jan 2010

**Note:** Sydney South West Area Health Service (SSWAHS) was established on 1 January 2005 with the amalgamation of the former Central Sydney Area Health Service (CSAHS) and the former South Western Sydney Area Health Service (SWSAHS).

In the interim period between 1 January 2005 and the release of single Area-wide SSWAHS policies (dated after 1 January 2005), the former CSAHS and SWSAHS policies were applicable as follows:-

- SSWAHS Eastern Zone : CSAHS
- SSWAHS Western Zone: SWSAHS

## Royal Prince Alfred Hospital

### Patient Observation (Vital Signs) Policy - Adult

#### CONTENTS

1. Introduction .....	3
2. Policy Statement .....	3
3. Principles / Guidelines .....	4
<b>3.1 General Principles</b> .....	4
<b>3.2 Vital Sign Frequency Considerations</b> .....	5
<b>3.3 Measuring Vital Signs</b> .....	6
<b>3.4 Respiratory Assessment</b> .....	7
3.4.1 Respiratory Rate .....	7
3.4.2 Pulse Oximetry .....	7
<b>3.5 Circulatory Assessment</b> .....	7
3.5.1 Pulse .....	7
3.5.2 Blood Pressure (BP) .....	8
3.5.4 Performing a Postural Blood Pressure (BP) .....	9
<b>3.7 Level of Consciousness</b> .....	9
4. Performance Measures .....	10
5. Definitions .....	10
6. References and links .....	11

## Royal Prince Alfred Hospital

### Patient Observation (Vital Signs) Policy - Adult

#### 1. Introduction

##### **The risks addressed by this policy:**

Monitoring of vital signs is an essential component of caring for all of patients at RPAH in order to assess treatment effects, detect procedural complications and identify early signs of clinical deterioration. At all times staff should use their clinical judgement regarding the frequency of observations and adjust where necessary. For example, unstable patients may need continual observation and frequent monitoring of vital signs until they are reviewed and stabilised. If in doubt, nursing staff should consult more senior staff immediately or activate the Clinical Emergency/Cardiac Arrest system so that timely care can be delivered.

Therefore the key risk addressed by this policy is to prevent a Serious Adverse Event (cardiac arrest, unexpected death or an unplanned admission to a critical care unit) by detecting physiological disturbances and initiating treatment in a timely and effective manner.

##### **The aims / expected outcome of this policy**

The 4 main aims of effective patient observation are:

1. Monitoring of physiological variables to evaluate treatment effects.
2. To maintain thorough assessment of inpatients within a tertiary referral hospital 24 hours a day.
3. Early detection and treatment of post procedural/surgical complications
4. Early detection & treatment of the deteriorating patient via the RPAH Clinical Emergency Response System.

#### 2. Policy Statement

Vital sign assessment is essential in the determination of a patient's health status and a core function of the Registered and Enrolled Nurse/Midwife at RPAH. Careful measurement techniques and knowledge of the normal range in vital signs for a particular patient will ensure that patients at RPAH are suitably monitored to enable clinicians to carefully monitor therapy and prevent adverse events. An alteration in a patient's vital signs can provide objective evidence of the body's response to physical and psychological stress or changes in physiological function. Vital sign monitoring is a core function of the Registered or Enrolled Nurse/Midwife at RPAH. This policy describes vital sign assessment, frequency and special considerations to ensure that patients at RPAH are provided safe and effective healthcare.

### 3. Principles / Guidelines

#### 3.1 General Principles

- 3.1.1 Monitoring of vital signs is an essential component of caring for all patients at RPAH in order to assess treatment effects, detect procedural complications and identify early signs of clinical deterioration. At all times staff should use their clinical judgement regarding the frequency of observations. Unstable patients may need continual observation and frequent monitoring of vital signs until they are reviewed and stabilised. If in doubt, nursing staff should consult more senior staff immediately or activate the Clinical Emergency/Cardiac Arrest system so that timely care can be delivered.
- 3.1.2 All patients should have vital signs (respiratory rate, pulse, blood pressure, temperature and level of consciousness) recorded on admission and then three times/day (TDS) as a minimum (excluding those patients as outlined in 3.2.6).
- 3.1.3 Patients requiring more frequent observations are listed below and in section 3.2.5
- 3.1.4 All observations **MUST** be charted at the time they are measured.
- 3.1.5 Respiratory Rate **MUST** be measured and recorded with every observation.
- 3.1.6 Oxygen saturations **MUST** be measured if the patient is tachypneic or dyspneic.
- 3.1.7 Abnormal blood pressure readings recorded on an automatic machine **MUST** be checked manually.
- 3.1.8 The Clinical Emergency/Cardiac Arrest System should be activated if vital signs breach the calling criteria.

#### 3.1.9 Overnight Observations

- All patients are to be visually checked **every 30 minutes at night** with rise and fall of chest during respiration observed.
- If the patient is awake, they should be offered toileting in order to decrease the risk of falls
- All patients must have their call bell within easy reach.
- Interventions and observations **must not** be withheld or delayed in an attempt to avoid disturbing the sleeping patient.

Indication	Frequency
1. Routine	TDS (within 2 hours of commencement of shift)
2. Clinical Emergency/Cardiac Arrest	Continuous observation until stabilised (15 minutely). Following stabilisation: <b>Hourly for four hours then fourth hourly</b> or as ordered by MO for 24 hours.
3. Post Surgery	Hourly for 4 hours then 4 hourly for 24 hours or otherwise ordered.
4. Pts who are symptomatic but have not yet breached the Clinical Emergency criteria	Repeat in 30 minutes or as ordered by MO.
5. Post fall	As per <b>RPAH Falls Management and Prevention Policy RPAH_PD2007_017</b> .
6. Blood product transfusion	As per <b>SSWAHS Administration of Blood Products Policy SSW_PD2009_005</b> .
7. Total Parenteral Nutrition	As per RPAH Total Parenteral Nutrition Policy.
8. Weight	On admission then once weekly unless medically ordered/indicated.
9. Unit/ward/specialty specific	As per local policy.

### 3.2 Vital Sign Frequency Considerations

- 3.2.1 Vital sign monitoring should be undertaken at the commencement of a nursing shift as part of a nursing assessment for each patient.
- 3.2.2 Vital sign frequency should then be established for the rest of the shift based on the initial assessment.
- 3.2.3 The longest acceptable gap between vital signs is **10 hours** (excluding patients deemed suitable for BD observations - see 3.2.6).
- 3.2.4 BD observations will be the minimum acceptable vital sign regime at RPAH and be reserved for patients as outlined in **3.2.6**.
- 3.2.5 As a general rule, patients requiring **more frequent** vital sign monitoring include:
- New admissions from the Emergency Department. **(4/24 for the first 24/24 then as required)**.
  - Patients transferred from Intensive Care Services (ICS). **(4/24 for the first 24/24 then as required)**. **NB** Patients who have been discharged from ICS are at a higher risk of having an adverse event such as a cardiac arrest or a readmission back to ICS and should be closely monitored.
  - Patient's who have had a change in their treatment or management.

- Patient's whose condition has changed suddenly but has not yet breached the Clinical Emergency Response System. 4/24 until stabilized.

3.2.6 As a general rule, patients requiring **less frequent** observation include:

- Patients awaiting rehabilitation (must have a completed rehabilitation consult and the patient must be documented in the progress notes by the medical team as waiting for rehabilitation) – once daily or as otherwise prescribed. If there is a change in condition while waiting for rehabilitation, then more frequent observations may need to be done.
- Long-term patients who have been assessed by a suitably qualified member of staff as requiring less frequent observation. This must be clearly documented on the patient's nursing care plan and in the progress notes. The minimum accepted vital sign regime for these patients is BD with a gap between observations of no more than 12 hours.

3.2.7 Patients being palliated do not require vital sign monitoring unless deemed necessary by the nurse caring for the patient.

### 3.3 Measuring Vital Signs

3.3.1 All patients must have respiratory rate, heart rate, blood pressure, temperature and level of consciousness (AVPU Scale) recorded each time observations are recorded.

3.3.2 The Registered Nurse/Midwife or Enrolled Nurse caring for the patient is responsible for vital sign measurement.

- Measurement of selected vital signs may be delegated to Health Care Assistants (HCA's), Assistants in Nursing (AIN's) or Nursing Students but the Registered Nurse/Midwife or Enrolled Nurse responsible for the patient's care must analyse the vital signs to interpret their significance and make decisions about interventions.
- Interpretation of vital signs cannot be delegated to a HCA, AIN or Nursing Student.

3.3.3 The patient must be settled and at rest for routine observations.

- Staff should wait 20 minutes following any activity before attending vital sign measurement.

3.3.4 All routine Vital Signs (Pulse, Respiratory Rate and Blood Pressure) are to be measured manually.

3.3.5 Automated electronic vital sign equipment is to be used only if:

- The patient requires more frequent observation (i.e following an abnormal manual observation).
- Manual observation equipment is temporarily unavailable.
- The patient is in a critical care unit (Emergency Department, Intensive Care Services, Coronary Care Unit).
- The patient is recovering from a general anaesthetic.
- The patient is in an outpatient department and is clinically well.

### 3.4 Respiratory Assessment

#### 3.4.1 Respiratory Rate

- The normal adult Respiratory Rate (RR) is 12-20 breaths/minute.
- The RR should be counted for 30 seconds.
- If the patient's RR falls outside the normal adult RR parameters then the RR must be counted for a full minute to ensure accuracy.
- The RR should be counted while palpating the patient's radial pulse so that the patient is not aware that you are observing them.
- The RR should be immediately charted on the RPAH General Observation Chart MR650.
- A Clinical Emergency call must be made for a RR of < 8 or > 24 unless modified on the RPAH General Observation Chart MR650.
- A Clinical Emergency call must be made if oxygen requirements have increased to maintain a patient's respiratory rate.

#### 3.4.2 Pulse Oximetry

- Pulse oximetry measures oxygen saturations in the patient's blood. Altered oxygen saturations are a **late sign of respiratory distress**. Initially the body will try and compensate for hypoxia by increasing the rate and depth of respirations. By the time the oxygen saturations are decreasing the patient is usually very compromised.
- Normal oxygen saturations are between 97-100%.
- Oxygen saturations < 90% correlate with very low blood oxygen levels and require urgent medical review. If your patient's oxygen saturations are low you will usually notice other signs that the patient is short of breath such as increased respiratory rate and effort.
- A Clinical Emergency call must be made for oxygen saturations < 90% unless otherwise modified on the RPAH General Observation Chart MR650
- A Clinical Emergency call must be made if oxygen requirements have increased to maintain oxygen saturations.

### 3.5 Circulatory Assessment

#### 3.5.1 Pulse

- The pulse should be measured by palpating the patient's radial pulse.
- If you are unable to access the patient's radial pulse, other sites can be used as appropriate.
- The patient's radial pulse should be assessed for rate, rhythm and amplitude (strength).
- The pulse should be counted for 30 seconds or longer (1 minute) if the rhythm is irregular.
- The normal adult pulse rate is 60 – 100 bpm.
- The pulse should be counted when the patient is at rest (at rest = no physical activity for 20 minutes).

- The pulse rate is to be immediately charted on the RPAH General Observation Chart MR650.
- A Clinical Emergency call is to be activated if the pulse rate is < 40 or > 130 bpm unless modified on the RPAH General Observation Chart MR650.
- A pulse rate **must not** be assessed or recorded using pulse oximetry.

### 3.5.2 Blood Pressure (BP)

- Routine BP assessment is to be undertaken manually (except for situations as outlined in 3.3.5).
- NIBP machines should not be used if a patients BP has breached the RPAH Generic Call Criteria for the Deteriorating Adult Patient (As per ***RPAH Clinical Emergency Response System. The management of the deteriorating adult patient at Royal Prince Alfred Hospital RPAH\_PD2009\_021 section 3.4***)
- Optimal adult BP should be < 130 mmHg Systolic and < 85mmHg Diastolic.
- The adult Systolic Blood Pressure (SBP) should be greater than 90mmHg. If the SBP is < 90mmHg the RPAH Clinical Emergency Response System should be activated unless modified on the RPAH General Observation Chart MR650.
- If the SBP is > 200mmHg the RPAH Clinical Emergency Response System should be activated unless modified on the RPAH General Observation Chart MR650.
- The normal adult pulse pressure (difference between the SBP and the Diastolic Blood Pressure (DBP)) is between 30 – 50 mmHg.

### 3.5.3 Performing a Manual Blood Pressure (BP)

- The patient should be at rest (at rest = no physical activity for 20 minutes) & restrictive clothing removed from the arm.
- Select the appropriate sized cuff. Ideally the width of the cuff should be 40% of the circumference of the midpoint of the limb on which the cuff is to be used. Cuffs that are too narrow for the size of the limb will result in a falsely elevated BP. Conversely, cuffs that are too large for the size of the limb will result in a falsely low BP measurement.
- The arm should be supported at the level of the heart.
- Check the systolic blood pressure (SBP) by inflating the cuff until the radial pulse can no longer be felt. Gradually deflate the cuff until you can feel the radial pulse. This point represents the SBP. ***This is also a very useful way to assess blood pressure in a sick hypotensive patient if you can't auscultate the pressure with a stethoscope.***
- Place the diaphragm of the stethoscope over the brachial pulse (do not tuck under cuff) and inflate to 30mmHg higher than the SBP.
- Deflate the cuff at 2-3mmHg per heartbeat.
- Korotkoff sounds are auscultated to determine SBP and DBP.
- SBP is the highest point at which the initial tapping (Korotkoff phase 1) is heard in two consecutive beats during exhalation.
- DBP is equated with the disappearance of Korotkoff sounds (Korotkoff phase 5).



- The BP is to be immediately charted on the RPAH General Observation Chart MR650.

#### 3.5.4 Performing a Postural Blood Pressure (BP)

- The patient should be at rest (at rest = no physical activity for 20 minutes) & restrictive clothing removed from the arm.
- Select the right sized cuff as per point 2 in 3.5.3.
- Position the patient supine and as flat as symptoms permit for 10 minutes prior to the initial measurement of blood pressure and pulse.
- Always check supine measurements prior to upright measurements.
- Always record both pulse and blood pressure at each postural change. The pulse oximeter can be used when assessing a postural pulse.
- Do not remove the blood pressure cuff between position changes.
- Once the supine blood pressure has been measure, sit the patient on the edge bed with feet dangling. The patient may also stand if tolerated.
- Wait 45 seconds to measure the pulse rate and 2 minutes to measure the blood pressure after each postural change.
- The postural BP is to be immediately charted on the RPAH General Observation Chart MR650. This should be noted on the general observation by placing either "lying", "sitting" or "standing" above the appropriate BP.

### 3.6 Temperature

- 3.6.1 Temperature is to be assessed according to the patient's condition, reason for admission or as per local/other policy guidelines.
- 3.6.2 Normal adult temperature is between 36.5° and 37.2° C.
- 3.6.3 At a minimum, temperature is to be assessed twice daily (except for patients being palliated – see 3.2.7).
- 3.6.4 The temperature is to be immediately charted on the RPAH General Observation Chart MR650.
- 3.6.5 A Clinical Emergency call is to be activated if a temperature meets defined specialty specific parameters as per ***RPAH Clinical Emergency Response System. The management of the deteriorating adult patient at Royal Prince Alfred Hospital RPAH\_PD2009\_021 section 3.4***.
- 3.6.6 For specific patient populations, please refer to local policies and procedures.

### 3.7 Level of Consciousness

- 3.7.1 The AVPU scale is a quick way to assess a patient's neurological status and is to be assessed each time a set of vital signs is measured.

<b>A</b>	<p><b>Alert.</b> The patient is alert and interactive.</p> <ul style="list-style-type: none"> <li>• If the patient is confused to either time <b>and/or</b> place <b>and/or</b> person then the score on the RPAH General Observation Chart MR650 = “<b>C</b>”.</li> <li>• If the patient is acutely confused, a Glasgow Coma Score must be obtained and the Clinical Emergency Response System should be activated.</li> </ul>
<b>V</b>	<p><b>Voice.</b> The patient responds to voice.</p> <p>If the patient is sleeping then the score on the RPAH General Observation Chart MR650 = “<b>S</b>”.</p> <ul style="list-style-type: none"> <li>• If the patient is abnormally drowsy then a Glasgow Coma Score must be obtained and the Clinical Emergency Response System should be activated.</li> </ul>
<b>P</b>	<p><b>Pain.</b> The patient responds only to central pain.</p> <ul style="list-style-type: none"> <li>• A Glasgow Coma Score must be obtained and regularly assessed and the Clinical Emergency Response System should be activated.</li> </ul>
<b>U</b>	<p><b>Unresponsive.</b> The patient is unresponsive.</p> <ul style="list-style-type: none"> <li>• A Cardiac Arrest call must be made through “222”.</li> <li>• A Glasgow Coma Score must be obtained and regularly recorded.</li> </ul>

3.7.2 Staff working in neurological areas or caring for a patient with a neurological condition the Glasgow Coma Scale (GCS) must be used.

3.7.3 All patients post fall must have a GCS assessed and recorded as per ***RPAH Falls Management and Prevention Policy RPAH\_PD2007\_017***.

#### 4. Performance Measures

All units must regularly audit the RPAH General Observation Chart MR650 at least quarterly (4 times per year) to ensure that vital signs are being recorded as per this policy document.

#### 5. Definitions

- > Greater than
- < Less than
- BD Every 12 hours (twice daily)
- TDS Every 8 hours (3 times a day)
- BP Blood Pressure

SBP	Systolic Blood Pressure
DBP	Diastolic Blood Pressure
GCS	Glasgow Coma Scale
RPAH	Royal Prince Alfred Hospital

## 6. References and links

- **Policy Author:** Aaron Jones, Nursing Executive Officer RPAH
- RPAH\_PD2007\_017 Falls Prevention and Management Policy  
[http://intranet.sswahs.nsw.gov.au/SSWPolicies/pdf/RPA/RPAH\\_PD2007\\_017.pdf](http://intranet.sswahs.nsw.gov.au/SSWPolicies/pdf/RPA/RPAH_PD2007_017.pdf)
- RPAH\_PD2009\_021 Clinical Emergency Response System  
[http://intranet.sswahs.nsw.gov.au/SSWPolicies/pdf/RPA/RPAH\\_PD2009\\_021.pdf](http://intranet.sswahs.nsw.gov.au/SSWPolicies/pdf/RPA/RPAH_PD2009_021.pdf)
- SSW\_PD2009\_005 Blood Products: Administration  
<http://intranet.sswahs.nsw.gov.au/SSWPolicies/pdf/pd2009005.pdf>
- Attin M, Cardin S, Dee V, Doering L, Dunn D, Ellstrom K, Erickson V, Etchepare M, Gawlinski A, Haley T, Henneman E, Keckeisen M, Malmset M & Olsen L (2002) An educational project to improve knowledge related to pulse oximetry, *American Journal of Critical Care*, 11(6):529-534
- Bilgin H, Kutlay O, Cevheroglu D, Korfali G (2000) Knowledge about pulse oximetry among residents and nurses, *European Journal of Anaesthesiology*, 17:650-651
- Bobay K, Fiorelli K & Anderson A (2008) Failure to rescue. A preliminary study of patient-level factors, *Journal of Nursing Care Quality*, 23(3):211-215
- Buist M, Bernard S, Nguyen T, Moore G & Anderson J (2004) Association between clinically abnormal observations and subsequent in-hospital mortality: a prospective study, *Resuscitation*, 62:137-141
- Chaboyer W, Thalib L, Foster M, Ball C & Richards B (2008) Predictors of adverse events in patients after discharge from the intensive care unit, *American Journal of Critical Care*, 17(3):255-263
- Chatterjee M, Moon J, Murphy R & McCrea D (2005) The "Obs" chart: an evidence based approach to re-design of the patient observation chart in a district general hospital setting, *Postgraduate Medical Journal*, 81:663-666
- Cheevakasemsook A, Chapman Y, Francis K & Davies C (2006) The study of nursing documentation complexities, *International Journal of Nursing Practice*, 12:366-374
- Chen J, Hillman K, Bellomo R, Flabouris A, Finfer S & Cretikos M (2009) The impact of introducing medical emergency team system on the documentation of vital signs, *Resuscitation*, 80:35-43
- Cretikos M, Bellomo R, Hillman K, Chen J, Finfer S & Flabouris A (2008) Respiratory rate: the neglected vital sign, *Medical Journal of Australia*, 188(11):657-659
- Crisp J & Taylor C (2005) *Potter and Perry's Fundamentals of Nursing*, Elsevier, Marrickville:610-659
- Fieselmann J, Hendryx M, Helms C & Wakefield D (1993) Respiratory rate predicts cardiopulmonary arrest for internal medicine patients, *Journal of General Internal Medicine*, 8(July):354-360
- Franklin C & Mathew J (1994) Developing strategies to prevent in-hospital cardiac arrest: Analyzing responses of physicians and nurses in the hours before the event, *Critical Care Medicine*, 22(2):244-247

- Giddens J (2007) A survey of physical assessment techniques performed by RNs: lessons for nursing education, *Journal of Nursing Education*, 46(2):83-87
- Harrison G, Jacques T, Kilborn G, McLaws M (2005) The prevalence of recordings of the signs of critical conditions and emergency responses in hospital wards – the SOCCER study, *Resuscitation*, 65:149-157
- Hillman K, Bristow P, Chey T, Daffurn K, Jacques T, Norman G & Simmons G (2001) Antecedents to hospital deaths, *Internal Medicine Journal*, 31:343-348
- Jacques T, Harrison G, McLaws M & Kilborn G (2006) Signs of critical conditions and emergency responses (SOCCER): a model for predicting adverse events in the inpatient setting, *Resuscitation*, 69:175-183
- Leonard M, Graham S & Bonacum D (2004) The human factor: the critical importance of effective teamwork and communication in providing safe care, *Quality and Safety in Health Care*, 13:i80-i90
- Lockwood C, Conroy-Hiller & Page T (2004) Vital signs, *Joanna Briggs Institute Reports*, 2:207-230
- McBride J, Knight D, Piper J & Smith G (2005) Long-term effect of introducing an early warning score on respiratory rate charting on general wards, *Resuscitation*, 65:41-44
- McCormick J (2005) Design and implementation of an observation chart with an integrated early warning score, *Practice Development in Healthcare*, 4(2):69-76
- McGain F, Cretikos M, Jones D, Van Dyk S, Buist M, Opdam H, Pellegrino V, Robertson M & Bellomo R (2008) Documentation of clinical review and vital signs after major surgery, *Medical Journal of Australia*, 189(7):380-383
- Massey D, Aitken L & Chaboyer W (2008) What factors influence suboptimal ward care in the acutely ill ward patient?, *Australian Critical Care*, 21:127-140
- Naeem N & Montenegro H (2005) Beyond the intensive care unit: a review of interventions aimed at anticipating and preventing in-hospital cardiopulmonary arrest, *Resuscitation*, 67:13-23
- Odell M, Rechner I, Kapila A, Even T, Oliver D, Davies C, Milsom L, Forster A & Rudman K (2007) The effect of a critical care outreach service and an early warning scoring system on respiratory rate recording on the general wards, *Resuscitation*, 74:470-475
- Secrest J, Norwood B & DuMont P (2005) Physical assessment skills: a descriptive study of what is taught and what is practiced, *Journal of Professional Nursing*, 21(2):114-118
- Skrifvars M, Nurmi J, Ikola K, Saarinen K & Castren M (2006) Reduced survival following resuscitation in patients with documented clinically abnormal observations prior to in-hospital cardiac arrest, *Resuscitation*, 70:215-222
- Smith A & Wood J (1998) Can some in-hospital cardio-respiratory arrests be prevented? A prospective survey, *Resuscitation*, 37:133-137
- Van Leuvan C & Mitchell I (2008) Missed opportunities? An observational study of vital sign measurements, *Critical Care and Resuscitation*, 10(2):111-115
- Watkinson P, Barber V, Price J, Hann A, Tarassenko L & Young J (2006) A randomised controlled trial of the effect of continuous electronic physiological monitoring on the adverse event rate in high risk medical and surgical patients, *Anaesthesia*, 61:1031-1039
- Woods S, Froelicher E, Halpenny C, Motzer S (1995) *Cardiac Nursing Third Edition*, J.B Lippincott Company, Philadelphia

- Zeitz K & McCutcheon H (2005) Tradition, rituals and standards, in a realm of evidenced based nursing care, *Contemporary Nurse*, 18:300-308
- Zeitz K & McCutcheon H (2006) Observations and vital signs: ritual or vital for the monitoring of postoperative patients?, *Applied Nursing Research*, 19:204-211