

## Patient Deterioration: Concept Paper

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### ABSTRACT

*In every health institution the possibility of patient deterioration is inevitable, however, the total outcome whether positive or negative depends on early identification of deterioration signs which are physical, emotional, psychological, social and spiritual domains. In most cases the health workers focus and document physiological signs of deterioration. A human being is holistic in nature has social, emotional, spiritual, psychological and physical needs that need to be attended to in cases of deterioration.*

### **Methodology**

*The concept analysis of patient deterioration was done using the eight (8) strategic methods and literature search was done using the following search engines Google scholar, Pubmed, Medline. Initially twenty five (25) articles from 2002 to 2018 were reviewed. Fourteen (14) were later dropped due to their irrelevant information. The authors settled on twelve (11) articles.*

### **Results**

*The majority of the authors dwelt much on physiological signs of deterioration not considering the emotional, psychological, social and spiritual domains.*

### **Conclusion**

*The response to patient deterioration calls for holistic approach to ensure maximum care regardless of patient outcome. Skills and experience of health personnel are also important in detecting patient deterioration.*

**Key words: Patient deterioration, deteriorating patient.**

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### **Introduction:**

The response to patients' deterioration lacks holism which has culminated in complications that affect the physical, psychological, social and spiritual being of the patient. There is tendency to focus on physiological presentation when rendering care to patients who are

deteriorating, neglecting the other crucial aspects of the human being. The holistic approach to patient deterioration does not only benefit the patient but also relatives, significant others and job satisfaction of the health worker in provision of high quality care.

**Problem statement**

Health workers encounter challenges in identifying patient deterioration which are related to a variety of factors such as lack of confidence in reporting signs of deterioration, incomplete reporting, failure to integrate theory and practice which consequently affect management of emergency situations. There is a predilection to physiological signs of patient deterioration when reporting with omission of the psychological, emotional, social and spiritual signs. Guinane, Hutchinson, & Bucknall, (2018) posited that delay or failure by health professionals to respond to clinical deterioration remains a patient safety concern.

**Objective:**

The objective of this paper is to have an in depth description of patient deterioration in order to harmonize the concept among health workers and to facilitate holistic approach to care.

**Significance of the concept:**

It is imperative for the health care personnel to be able to promptly and rigorously detect patient deterioration so as to provide holistic care. This analysis also highlight the essentiality that the nurses need not to devalue or ignore concerns they have about the patients thus considering objective and subjective data.

**Literature search:**

The concept analysis of patient deterioration was done using the eight (8) strategic methods (Walker and Avant, 2011). Literature search was done using the following search engines Google scholar, Pubmed, Medline. Initially twenty five (25) articles from 2002 to 2018 were reviewed. Fourteen (14) were later dropped due to their irrelevant information. Eleven (11) articles were settled for analysis as outlined in the table below.

**Table**

	Journal	Definition and uses	Antecedents	Attributes	Comments
1) Mok WQ, Wang W, Liaw SY (2015)	International Journal of Nursing Practice	Uses: Vital signs are known to make a convincing and effective referral language as they are quantifiable and unambiguous.	Physical cues: noisy breathing and agitation, altered skin colour, clammy to touch, and verbalization of feeling unwell.  Vital signs	Deterioration in: five core vital parameters such as, respiratory rate, blood pressure, temperature,	Clinical knowledge to interpret abnormal vital signs accurately very important.  Monitoring of vital signs by non-registered staff but their competence in identifying

		<p>Nurses often used subjective social language to communicate deterioration.</p>	<p>abnormalities occur in patients multiple hours preceding deterioration.</p> <p>Technological advances have resulted in an over-reliance on electronic monitoring equipment to acquire vital signs.</p>	<p>and SpO<sub>2</sub>.</p>	<p>deterioration remains unknown.</p> <p>Use of pulse oximetry to be a likely cause of poor respiratory monitoring as some nurses may regard it as a substitute for respiratory rate monitoring.</p>
<p>2). Porter, E. J., Cant, R., Missen, K., Raymond, A., &amp; Churchill, A. (2018)</p>	<p>International Journal of Mental Health Nursing</p>	<p>Nil</p>	<p>In mental illness: underlying medical conditions rather than to psychiatric illness.</p> <p>Cardiac resuscitation</p>	<p>Cardiac collapse.</p>	<p>Health personnel need to be always vigilant in their screening criteria to exclude underlying conditions</p>
<p>3). Massey, D., Chaboyer, W., &amp; Anderson, V. (2017).</p>	<p>Nursing Open</p>	<p>A patient who moves from one clinical state to a worse clinical state which increases their individual risk of morbidity, including organ dysfunction, protracted hospital stay, disability or death.</p> <p>Vital signs and observations were identified as particularly important in assessing the patient and recognizing patient deterioration.</p>	<p>The level of education was a significant predictor in ward nurses' ability to promptly recognize patient deterioration.</p> <p>Knowing the patient: Ward nurses also recognized patient deterioration through 'gut feelings or a sixth sense' and identified this as intuition.</p>		<p>Ward nurses then used these subtle cues to recognize that the patient was deteriorating and not knowing the patient acted as a barrier to recognizing deterioration.</p>

<p>4). Guinane, J., Hutchinson, A. M., &amp; Bucknall, T. K. (2018).</p>	<p>Journal of Clinical Nursing</p>	<p>Nil</p>	<p>Patients sometimes identify subtle cues of early deterioration prior to changes in vital signs.</p> <p>These patients reported being too sick to communicate prior to and during medical emergency team review.</p>	<p>Most commonly, physical sensations that elicited concern to patients were feeling short of breath, burning skin, pain, sweating, dizziness, excessive tiredness and nausea.</p>	<p>Promoting a collaborative relationship and encouraging patients to communicate their concerns is of paramount importance.</p>
<p>5). Odell, M. (2015).</p>	<p>Journal of Clinical Nursing</p>	<p>Nil</p>	<p>Ward staff can miss, misinterpret or mismanage the signs of physiological deterioration.</p>	<p>Cardiac arrest as a surrogate marker for deterioration</p>	<p>Adequacy in training and improvement in monitoring of vital signs leads to improved outcome.</p>
<p>6). Lavoie, P., Pepin, J., &amp; Alderson, M. (2016).</p>	<p>Nursing Critical Care</p>	<p>Also defined as an evolving, predictable and symptomatic process of worsening physiology towards critical illness.</p> <p>A physiological phenomenon: a disordered physiology, consequence of a malfunctioning of the body's homeostatic mechanism, the effect of physiological abnormalities.</p>	<p>Worsening of physiology towards critical illness.</p>	<p>Nil</p>	

<p>7). Padilla, R. M. &amp; Mayo, A. M. (2018)</p>	<p>Journal of Clinical Nursing</p>	<p>Nil</p>	<p>Clinical state, susceptibility, pathogenesis, adverse event.</p>	<p>Dynamic state, decompensation and objective and subjective determination.</p>	<p>Subjective response is very important in deteriorating patient.</p>
<p>8). Jones, D., Mitchell, I., Hillman, K. &amp; Story, D. (2013)</p>	<p>Resuscitation</p>	<p>A major challenge with recognising and responding to clinical deterioration is the lack of a consensus definition as to what constitutes a deteriorating patient or clinical deterioration.</p> <p>A deteriorating patient is one who moves from one clinical state to a worse clinical state which increases their individual risk of morbidity, including organ dysfunction, protracted hospital stay, disability, or death.”</p>	<p>Nil</p>	<p>Number of vital signs deranged.</p> <p>Presence of increased respiratory rate.</p> <p>End-organ dysfunction.</p>	
<p>9). Australian Commission on Safety and Quality Health Care [ACSQHC], 2008)</p>	<p>National Safety and Quality Health Standards.</p>	<p>Nil</p>	<p>Not monitoring vital signs consistently or detecting changes in vital signs.</p> <p>Lack of knowledge of signs and symptoms that could signal</p>	<p>Deterioration of airway, breathing, circulation, neurology (fall in Glasgow coma scale of greater than 2 points).</p>	

			<p>deterioration.</p> <p>Failing to recognise the significance of apparent deterioration.</p> <p>Failure of ward staff to promptly seek supervision or advice.</p> <p>Lack of skills and knowledge.</p> <p>Delays in notifying the medical staff of the signs of deterioration.</p> <p>Delays by medical staff in responding to such notification.</p>		
10). Hillman, K.M., Bristow, P.J., Chey, T., Daffurn, K., Jacques, T., Norman, S. L. ... Simmons, G. (2002).	Intensive Care Medicine	Nil	<p>Before admission were hypotension, tachycardia, tachypnoea, and sudden change in level of consciousness.</p> <p>Delayed recognition and the lack of an organized approach to at-risk patients.</p>		
11). Health Quality & Safety Commission, 2016		Nil	Nil	level of consciousness	

## **Methods:**

Walker and Avant's strategic eight step method of concept analysis was used in analyzing the concept of Patient Deterioration. The steps of concepts of analysis are: selection of the concept, determining the purpose of analysis, identifying all uses of the concept, determining the defining attributes of the concept, identifying antecedents of the concept, identifying the consequences of the concept, constructing cases; model case, borderline case, contrary case and identifying the empirical referents of the concept (Walker & Avant, 2011)

## **Definitions and uses of the concept.**

Massey, Chaboyer, & Anderson (2017) defined patient deterioration as a patient who moves from one clinical state to a worse clinical state which increases their individual risk of morbidity, including organ dysfunction, protracted hospital stay, disability or death.

Patient deterioration is solely referred to as a physiological phenomenon, an evolving, predictable and symptomatic process of worsening physiology towards critical illness (Lavoie, Pepin, & Alderson, 2016).

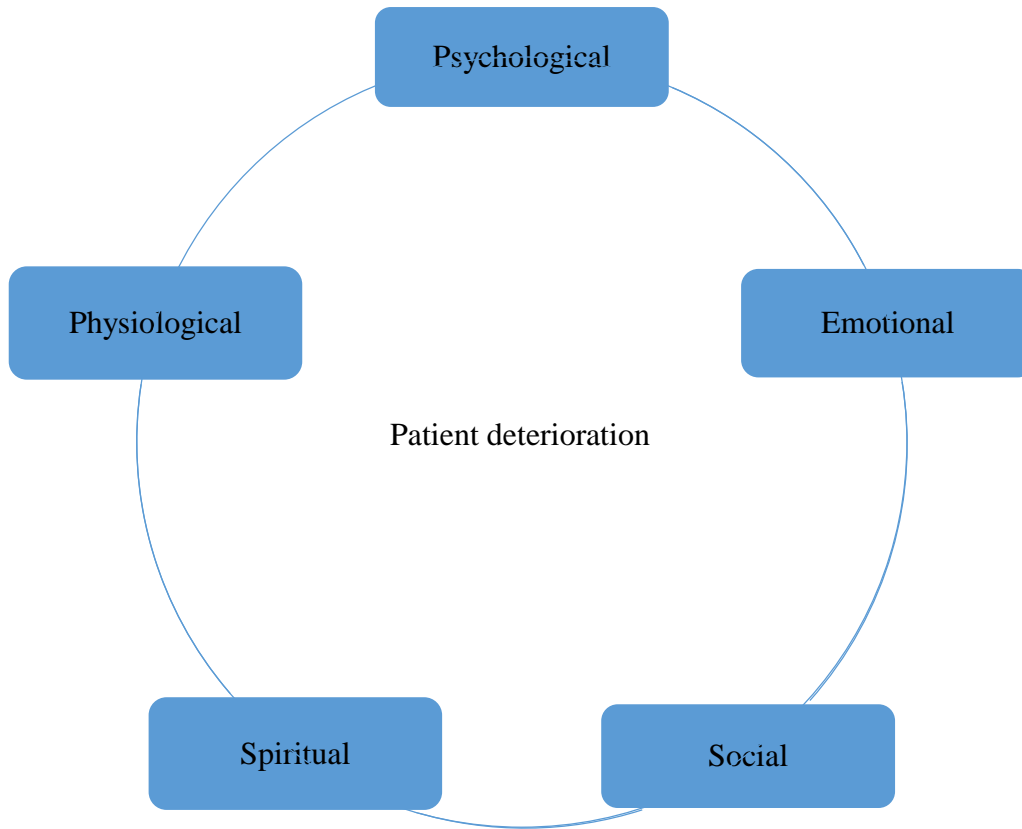
Jones, Mitchell, Hillman & Story (2013) propound a deteriorating patient as one who moves from one clinical state to a worse clinical state which increases their individual risk of morbidity, including organ dysfunction, protracted hospital stay, disability, or death. Jones et al. (2013) observed the challenge with recognising and responding to clinical deterioration as emanating from the lack of a consensus definition as to what constitutes a deteriorating patient or clinical deterioration. Jones et al. (2013) underpinned their definition of patient deterioration on iatrogenesis and medical neglect; discrete clinical complications; based on deranged vital signs.

The authors have noted that the available literature on patient deterioration lacks holistic approach as evidenced by definitions given by Massey et al., (2017); Lavoie et al., (2016) & Jones et al., (2013) as they all focused on the physiological domain presentation. The researchers seek to harmonise the use of the concept.

## **Defining attributes:**

Defining attributes are the characteristics of the concept that differentiate a concept from another related concept and clarify its meaning (Walker & Avant, as cited in Brush, 2011). Literature search revealed the following attributes of patient deterioration: deterioration in five core vital parameters such as respiratory rate, heart rate, blood pressure, temperature, and peripheral capillary oxygen saturation (Mok, Wang & Liaw 2015), cardiac collapse (Porter, Cant, Missen, Raymond, & Churchill, 2018), too sick to communicate prior to and during medical emergency team review (Guinane, Hutchinson, & Bucknall, 2018), feeling short of breath, burning skin, pain, sweating, dizziness, excessive tiredness and nausea (Guinane et al. 2018), physiological instability (Jones et al., 2013) and level of consciousness (Health Quality & Safety Commission, 2016). Inability to recognize and respond to patient deterioration by the health personnel has a negative impact on the patient outcome.

## Working definition or model case



Patient deterioration is continuous or progressive worsening of emotional, psychological, physical, spiritual and social wellbeing of the patient that can result in either recovery or death of the patient. The emotional, physical, psychological, spiritual, and social aspects are inherent to the patient hence when the patient is deteriorating these aspects are reciprocate and influence one another.

Emotional deterioration refers to patient’s inability to interact effectively with caregivers, relatives and is detached from the surrounding milieu. The individual is also not concerned about self. Physical deterioration refers to declining, weakening of the physiological integrity of a human being. Spiritual deterioration refers to the decline in spiritual countenance. Social deterioration refers to the decline in social support from the significant others such as family, friends and care givers. Psychological deterioration this refers to the mental degradation of the mind secondary to illnesses and stressors. Therefore the health workers must consistently be cognisant of addressing physical, emotional, social, spiritual deterioration when rendering care to the patient who is deteriorating.

### Model case and analysis:

A 50 year old men, employed as a bus driver was admitted following an accident in which he sustained crush fracture of the femur which resulted in amputation of the limb. While in the post recovery room, the stump began haemorrhaging profusely, the vital signs became



abnormal, began sweating, the alarm monitor kept on ringing, the patient displayed fear and verbally tried to express his concerns regarding what was going on with him. The anaesthetist immediately activated the emergency team response. The bus driver requested the family to be by the bedside and this request was granted. The family began praying for him. As the resuscitation progressed well the vital signs began improving and was successfully resuscitated. The emergency team kept on updating the patient above the activities that were being rendered.

In this case the patient presented simultaneously with physical and emotional distress. The anaesthetist immediately detected signs of physical deterioration which were the abnormal vital signs. During rendering of the care the patient also displayed fear and verbally tried to express his concerns; this signifies that the psychological and emotional aspects of the patient are paramount to a deteriorating patient. The emergency team's approach accommodated all the aspects of the patient, however, the team also embraced the importance of the family in when the patient is deteriorating. The family consequently contributed in addressing the psychological, emotional, social and spiritual needs of the patient during this critical period. The resuscitation was successful and patient fully recovered.

### **Borderline and analysis**

Borderline cases are examples that contain the majority of defining attributes, but not all of them (Walker and Avant, 2011). Borderline cases generally have one important feature missing in comparison to the model cases (Wilson, 1963). These cases are inconsistent when considering the defining characteristics of the concept and help to conclude why the model case is consistent (Walker and Avant, 2011).

A nineteen year old lady is admitted in postnatal ward with a history of postpartum haemorrhage that was successfully managed in labour ward. During routine check-up, the nurse found the patient in pool of blood in an hour time with vital signs deteriorating, unable to breast feed and difficulty in breathing and as well as difficulty in communication. The husband had been denied entry because it was not visiting hour.

In this case the patient presented with physiological manifestations which are the deteriorating vital signs. The patient was unable to breast feed; this contributed to psychological stress. Psychological stress could have been to some extent alleviated by the husband, however, was denied entry because it was not visiting time. The patient could have been in need of spiritual comfort from their religious leader, however, this could not be ascertained because the patient was encountering difficulties in communication.

### *Implications*

The patient could have died culminating in deprivation of maternal care to the neonate. The mother encountered lack of psychological, emotional, spiritual and social support which could have resulted in maternal depression.

### **Contrary case and analysis:**

A contrary case is a clear example of what a concept is not, and does not include any of the attributes (Walker and Avant, 2011). The contrary case of patient deterioration model case is as follows:

A bus driver was admitted with profuse haemorrhage following an accident. The nurse did not recognise the sign and warning of patient deterioration, the bell rang and no one paid attention, since the staff were busy attending to new admissions. After an hour of visiting time the relatives arrived and patient was not able to communicate and there was a delay in alerting the emergency team and eventually the patient died.

Analysis of the contrary case:

The physiological signs of patient deterioration were present such as profuse bleeding but health personnel did not see it as a warning sign. The emergency team was not called in time to save life. The patient did not receive psychological, emotional, social and spiritual support from the both relatives and staff. The inability of the patient to communicate could have caused emotional and psychological trauma to both patient and relatives. The spiritual support was not provided to the patient.

### **Antecedents:**

Walker and Avant (as cited in Brush, 2011) defined antecedents as the events that occur prior the concept.

Lack of knowledge by attending clinical staff, failure to appreciate clinical urgency, lack of appropriate supervision and failure to seek advice (McQuillan, 1998; Lundberg, 1998 & Bion, 1995, as cited in Hillman et al. 2002). Mok et al., (2015) concurred that inadequate clinical knowledge by nurses has resulted in patient deterioration. Delay in referring deteriorating patient, delays by medical staff in responding to notification, failure of ward staff to promptly seek supervision or advice (Australian Commission Safety and Quality Health Care [ACSQHC], 2008).

Resistance to activate the medical emergency team exposes the patient to deterioration (Massey, Chaboyer, & Aitken, 2014). Mok et al., (2015) recited that vital signs abnormalities occur in patients multiple hours preceding deterioration. This means that health care personnel can detect patient deterioration as early as possible and act promptly to prevent further worsening.

Physical cues such as noisy breathing and agitation, altered skin colour, clammy to touch, and verbalization of feeling unwell (Mok et al., 2015).

In mental illness, underlying medical conditions rather than to psychiatric illness (Porter, Cant, Missen, Raymond, & Churchill, 2018). Cardiac resuscitation (Porter et al., 2018).

Monitoring of the five core vital parameters such as respiratory rate, heart rate, blood pressure, temperature, and peripheral oxygen saturation to identify at-risk ward patients (Mok

et al., 2015), clinical state, susceptibility, pathogenesis, adverse event (Padilla, & Mayo, 2018), patient location/situation, disease factors, vital sign factors, presence of end organ dysfunction, therapy factors and organisational (system) factors (Jones et al., 2013).

Hypotension, tachycardia, tachypnoea, and sudden change in level of consciousness.

Delayed recognition and the lack of an organized approach to at-risk patients.

### **Consequences:**

Walker and Avant (as cited in Brush, 2011) defined consequences as events that can occur as a result of the occurrence of a concept and that can often stimulate new ideas for research pertaining to certain concepts. Possible consequences of patient deterioration include disability-adjusted life years, increasing hospital length of stay, decreasing quality of life and increasing morbidity and mortality, organ dysfunction (Massey, Chaboyer, & Anderson, 2017), unexpected physiological deterioration in hospitalized patients leading to poor outcomes and death (Odell, 2015), resuscitation, implementation of higher level of care and prolonged hospital admission (Padilla & Mayo, 2018), patient morbidity and/or mortality (Jones, Mitchell, Hillman, & Story, 2013; Odell, 2015; Massey et al., 2017 & Padilla et al., 2018 ) and unexpected death, cardiac arrest, unplanned admission to intensive care units (ACSQHC, 2008).

### **Empirical referents:**

Empirical referents are measurable ways to demonstrate the occurrence of the concept (Walker & Avant, as cited in Brush, 2011). The empirical referents for patient deterioration are:

Failure to recognise patient deterioration and making decision by the health personnel.

Deteriorating vital signs.

Reduced or low level consciousness.

Commission and omission errors in caring.

Inability to communicate and physiological instability.

Lack of timely referral to a more senior clinicians.

### **Recommendations:**

The health personnel to respond to all aspects of a human being which comprises of the psychological, spiritual, emotional, social and physical wellness. Health personnel has to effectively and confidently utilise their skills and intuition to detect early signs of patient deterioration. Team spirit is the core in the emergency management of the patient deteriorating.

## Conclusion:

When rendering care to patients, once there is any sign of physical, emotional, social, spiritual and psychological indication of deterioration due diligence and vigilance has to be employed holistically to aid the patient.

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