

Making Sense of Prevalence and Incidence Monitoring

With increasingly complex and costly treatments emerging in the field of pressure ulcer management, it is critical for healthcare providers to have a clear, data rich source of evidence in order to accurately measure the contribution of pressure ulcer strategies. Such strategies may focus on equipment, training or financial streamlining; whatever the approach the healthcare provider cannot plan for future trends if policies are based on unreliable data. The following is a brief dip into the benefits and drawbacks of the different methods of pressure ulcer audit, as it has evolved through prevalence and incidence to case mix adjustment.

DEFINING THE TERMS¹:

Both prevalence and incidence are measures of disease frequency and provide different perspectives on the scale of a problem; pressure ulcers in this instance.

Prevalence measures the number of patients with pressure ulcers at a certain point or period in time and includes both new and old cases, regardless of origin. It can be divided into:

- Point prevalence where data are collected on one day providing a snap shot.
- Period prevalence where data are collected over a specific time period.

Incidence measures the number of persons from a defined population **developing** new pressure ulcers during a period of time. Monitoring incidence on a long-term basis helps provide insight into sources of pressure ulcers and numbers of affected patients.

Prevalence and incidence data cannot be interchanged. For example, an incidence of 18.6% is of more concern than a prevalence of 18.6%. Within a hospital, a prevalence of 18.6% relates to the total number of both nosocomial (in-house or facility-acquired) pressure ulcers plus those 'inherited' from elsewhere; incidence on the other hand refers solely to the number of new ulcers that have developed over a period of time. It is generally accepted that incidence is more meaningful than prevalence and provides information on where and when patients developed pressure ulcers, however it is much more time consuming to collect and analyse.

THE BENEFIT OF INCIDENCE MONITORING FOR MEASURING THE QUALITY OF CARE²:

The European Pressure Ulcer Advisory Panel (EPUAP) considers that measuring pressure ulcer incidence is the most appropriate approach if the goal is to:

- a) understand how the introduction of new protocols and interventions has affected the number of patients with pressure ulcers,
- b) to predict pressure ulcers or
- c) to develop and evaluate risk assessment scales.

The boxes highlighted indicate the key benefits of incidence monitoring, which can help healthcare providers both plan and fund future strategies.

Characteristics of Prevalence and Incidence		
Characteristic	Prevalence	Incidence
Purpose	Gain insight into magnitude of pressure ulcers	Gain insight into magnitude of pressure ulcers
		Gain insight into <i>causation</i> of pressure resources
	Enables planning for health resources	Enables planning and evaluation for health resources
	Compliance with prevention and treatment guidelines/protocols	Compliance with prevention and treatment guidelines/protocols
		Evaluation of <i>effectiveness</i> of preventive measures/treatments

HEALTHCARE ACQUIRED PRESSURE ULCERS: THE PREVALENCE AND INCIDENCE HYBRID:

While prevalence is weakened by not indicating the quality of care delivered, incidence monitoring is plagued by being time consuming and suffering low compliance rates over time. A reasonable alternative is to do a 'spot' measure of the number and severity of 'facility-acquired' ulcers. This is not a true incidence but a good indicator of the quality of care.

VARIOUS FACTORS THAT INFLUENCE PREVALENCE AND INCIDENCE DATA OUTCOMES:

- Is the patient's skin actually assessed or are notes relied upon for identification of tissue damage? Actual skin assessment is far more accurate than retrospective notes, so will inevitably lead to a higher prevalence rate e.g. 20% versus 10% in acute care is not unusual.
- Which classification system is used? Different methods interpret tissue damage differently.
- Can assessors accurately identify the different Stages of tissue damage? How is blanching erythema assessed? How is a healing Stage 4 pressure ulcer Staged?
- Are Stage 1 pressure ulcers recorded? Not all studies record the presence of Stage 1 damage: this is because...
 - Even experts don't agree and its very difficult to detect with certainty.
 - Some non-blanching erythemas are transient, so are used simply to indicate the need for intervention.
- Do those who collect data interpret tissue damage in the same way each time a patient is assessed? (Intra and inter-operator variability).
- Has the patient got skin damage from pressure or is it a result of incontinence, dermatitis or another pathology? Is the practitioner skilled in determining the difference between the pathologies?
- Is it beneficial to the unit/institution/nurse to have low or high levels of pressure ulceration recorded? More resources may be available if pressure ulcers are reported; conversely institutions may be forced to close down if figures are high due to assumed low quality of care.

COMMON ANOMALIES SEEN IN AUDIT REPORTS THAT MAY CAUSE CONCERN:

Overall pressure ulcer rates increase unexpectedly

- This is a common feature over the first 1-3 years of audit monitoring and usually occurs as a result of improved education and awareness amongst staff and is almost always linked to the enthusiastic and systematic reporting of red skin. Previously, reddened skin may not have been recognised by staff as early Stage pressure damage.
- Education, removal of a 'blame' culture, enhanced electronic reporting systems and the follow-through of equipment may encourage reporting. This trend should be viewed as a 'positive' rather than a 'negative' event, especially if it is associated with the reduction in the incidence of new tissue damage at Stage 3 and 4.
- Seasonal variation (or admission trends) may produce an influx of patients with ulcers; these inherited wounds impact on overall prevalence rates but are not indicative of the quality of care provided.
- Although Stage 1 reporting can skew the data, it does enable active implementation of early preventative strategies – this is a cost effective solution rather than waiting for more severe pressure ulceration to develop, so it should be factored into the audit reporting process.

Solution: *To get a true picture of the underlying trends, report the data **both with and without Stage one ulcers**; this gives an important indicator of the value of investment in education and training. Report facility-acquired wounds separately to those inherited from elsewhere.*

Pressure ulcer incidence remains at the same levels or even increases despite investment in preventative measures

- The risk profile of the population studied may have changed. For example, the inclusion of a new unit where patients are functionally more dependent (e.g. elderly care, spinal injury) or even simple seasonal variations will affect rates. The process of case-mix adjustment enables an accurate comparison of data to be made over time and uses mathematical modelling to answer the question ... has the pressure ulcer rate increase/decrease occurred due to changes in quality of care or because the population has changed?

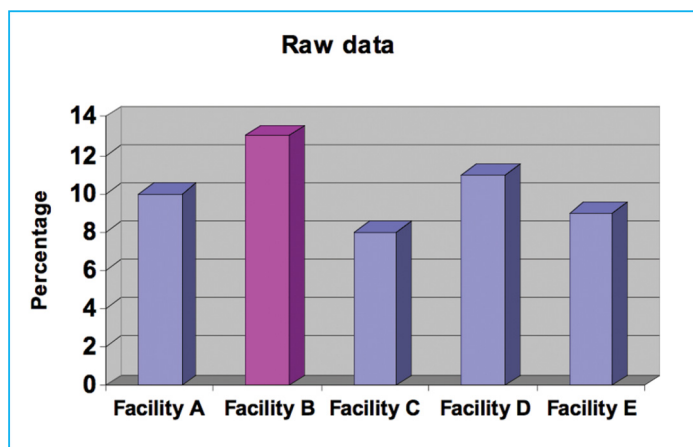
Solution: *Case mix adjusted 'facility-acquired' data analysis, is probably the simplest and most robust tool available to the healthcare provider, who seeks to measure both the quality of care provided and the impact of their pressure ulcer management strategies. In the absence of case-mix adjustment, repeat audits during the same month each year to reduce the impact of seasonal variation.*

References:

1. Bethell E (2002). Incidence and prevalence data: can we ensure greater accuracy? *Journal of Wound Care*, 11 (8): 285-288
2. Defloor T, Clark M, Witherow A et al (2005). EPUAP statement on prevalence and incidence monitoring of pressure ulcer occurrence. *Journal of Tissue Viability*, 15 (3): 20-27

MAKING COMPARISONS BETWEEN FACILITIES.

These charts show the effect of case mix adjustment by taking into account the different risk profiles within populations.



At first glance, Hospital B has the highest incidence of facility-acquired wounds when looking at the raw data.

However, risk-adjustment also reveals that it is caring for the most vulnerable and dependent population; this needs to be taken into account before making any comparisons. The same goes for comparing different disciplines within a facility e.g. elderly care versus short stay surgery, or when comparing the same facility over periods of time.

After taking these very important 'risk' differences into account, and comparing like-for-like, Hospital B now shows a much lower rate of pressure ulcer evolution and therefore demonstrates a better quality of care in terms of pressure ulcer avoidance.

