

Pressure injury measurement frequently asked questions

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Abbreviations used commonly in this document

HAPI	hospital-acquired pressure injury
non-HAPI	non-hospital-acquired pressure injury
PI	pressure injury
QSM	quality and safety marker
SAC	severity assessment code

1. Why is the Commission interested in measuring pressure injuries?

Pressure injuries (PIs) are an indicator of the quality of care patients receive. They are most often avoidable, have significant negative impacts on patients' lives, increase hospital length of stay and are associated with using up unnecessary resources.

Measuring how often PIs occur ('prevalence') is helpful in two ways: it allows us to monitor the effectiveness of improvement activities to reduce PIs; and it helps to make PI prevention practice more consistent around the country.

In November 2017 the Health Quality & Safety Commission (the Commission) was unable to measure the exact prevalence of PIs in Aotearoa New Zealand because there was no consistent measurement approach. This is something we hoped to change with the introduction of our PI quality and safety marker (QSM).

In late 2014, the Commission, the Accident Compensation Corporation (ACC) and the Ministry of Health (the Ministry) engaged KPMG to investigate the economic and social harm caused by PIs. KPMG advised on the likely benefits of a national improvement programme. The report is [available here](#). It has helped to inform a joint agency approach to PI prevention.

The Commission's PI measurement work aims to complement the work of ACC¹ and the Ministry,² and make prevention practice, data collection and reporting more consistent around New Zealand. This consistency will improve data for local prevention work and enable measurement of the prevalence of PIs. It also allows change over time to be measured.

2. What does the Commission hope to achieve with its PI work?

We hope to:

- improve consistency of PI prevention practice around the country and, as a result, reduce unwarranted variation³
- give organisations the tools to monitor performance improvement, resulting in:
 - fewer PIs occurring over time
 - the benefits of PI prevention activities being realised
- take a robust, standardised approach to data and information aggregation in order to better understand the prevalence of PIs in New Zealand. This information will help with decisions about which providers should have further support to reduce PIs and associated harm (for example, hospitals, aged residential care providers and/or community-based care providers).

¹ See www.acc.co.nz/for-providers/treatment-safety/#preventing-treatment-injuries and www.acc.co.nz/assets/provider/acc7758-pressure-injury-prevention.pdf

² See www.health.govt.nz/our-work/regulation-health-and-disability-system/certification-health-care-services/information-providers-health-care-services/notifying-incident-or-other-matter-required-under-section-31

³ 'Unwarranted variation' here relates to differences in rates of PIs in different parts of the country, for no obvious reason.

3. When did the Commission introduce the PI QSM?

District health boards (DHBs) started reporting their PI data to the Commission on a quarterly basis on 1 July 2018. The information became public in 2019 once information collection and reporting was established.

4. What are QSMs?

QSMs are sets of related indicators concentrating on specific areas of harm.⁴ They help providers to focus on and prioritise an area of high harm. They can drive changes in behaviour or practice, and a shift to using evidence-based processes that are known to reduce harm and improve patient outcomes. They are also used to evaluate the success of quality improvement programmes and see whether desired changes in practice and reductions in harm and cost have occurred.

The markers have two parts: process (certain care practices known to be effective) and outcomes (what happens with patients and the health system). [More information about QSMs is available here.](#)

Process measures show whether desired changes in practice have occurred and thresholds are typically set high, for example, at 90 percent. The Commission's reporting of the process measures shows DHBs' actual level of performance compared with the threshold for 'expected' performance.

Outcome measures focus on the occurrence of avoidable harm; for PI this is all stages and includes unstageable injuries. They are shown at DHB and national levels, to demonstrate the size of the problem being addressed and changes over time.

5. What is the PI QSM?

The PI QSM comprises two process measures and two outcome measures, which are calculated in the following ways:

- Process 1: Percentage of patients with a documented and current⁵ PI assessment.
- Process 2: Percentage of at-risk patients with a documented and current⁶ individualised care plan with specific PI actions.
- Outcome 1: Percentage of patients with a hospital-acquired PI (HAPI).⁷
- Outcome 2: Percentage of patients with a non-hospital-acquired PI (non-HAPI).⁸

⁴ In addition to the PI QSM, the Commission has the following QSMs: eMedicine reconciliation, consumer engagement, falls, healthcare associated infections (hand hygiene, surgical site infection (cardiac and orthopaedic hip and knee arthroplasty)), medication safety, opioids, patient deterioration and safe surgery.

⁵ A current assessment is one that evaluates recent patient need and has been conducted before the day of measurement and within the last seven days.

⁶ A current individualised care plan is one that responds to a current assessment of patient need (eg, within the last week or within reasonable proximity to a change in the patient's condition).

⁷ HAPIs are any stage of PI developed after admission to the hospital or that were not captured on admission.

⁸ Non-HAPIs are any stage of PI above stage 1 that are captured on admission. If the PI is stage 1 it is considered to be a HAPI because these can develop in a very short period of time, eg, four hours, and could have developed while the patient was waiting for admission. Regardless of stage, if the PI was not captured on admission (meaning noted in the patient notes) it must be counted as a HAPI.

The same group of patients must be used for both the process and outcome measures.

6. Is there public reporting of PI QSM results?

Yes, just as there is for other Commission QSMs.

7. Are the outcome measures reported by stage?

Yes. Stage 1 PIs are likely to make up the majority of HAPIs (see [question 11](#) for a definition). Simply reporting an overall prevalence rate could mislead the reader about the severity of the issue or the PI being reported. For example, stage 1 PIs involve no break in the skin; stage 2 PIs are partial-thickness wounds; stage 3 and 4 PIs are full-thickness wounds; and unstageable PIs are likely to be full-thickness. DHBs therefore report the stages separately so the outcome measures can be reported by stage and the true scale of the problem is easier to understand.

A staging tool, [How to classify and document pressure injuries, is available here](#).

PIs can appear differently in skins of different tone; therefore, it is helpful to stage using a range of tools that reflect multicultural settings. [These tools are available here](#).

More information can be found [on the New Zealand Wound Care Society website](#) or [in this ACC leaflet](#).

8. Where and how does the Commission report the QSM data?

The QSM data is published quarterly [on our website](#). For the PI QSM, both process and outcome measures are reported by DHBs as percentages, which means DHBs need to report numerator and denominator data to us.

9. What are the numerators and denominators?

A numerator is the top number in any fraction. The denominator is the bottom number of any fraction.

The numerator for the first process measure will be the count of patients with a documented PI assessment. The denominator is the number of patients included in the surveillance for that period (ie, the total number of patients sampled).

The numerator for the second process measure is the count of patients with a documented, current individualised care plan that includes actions specific to that patient's PI(s), either existing or at risk of. The denominator is the number of patients with a documented PI assessment that were then found to be 'at risk' (meaning an individualised care plan with specific PI actions is warranted). In other words, the denominator of the second process measure is a subset of the numerator of the first process measure.

For the outcome measures, we report the prevalence of HAPIs by stage. The numerator is the count of patients with any stage of HAPI (stages 1, 2, 3, 4 and unstageable). The denominator is the number of patients included in the surveillance for that period (ie, the total number of patients sampled).

10. Which PIs should be counted and reported?

Any stage of PI (ie, stages 1, 2, 3, 4 and unstageable) should be counted and reported as either a HAPI or a non-HAPI. For patients with more than one PI, DHB hospitals should report the most severe PI to us.

Hospitals should assume that all stage 1 PIs are HAPIs; other stages may have occurred outside the hospital. However, if the PI was not noted on admission, it must be reported as a HAPI regardless of stage because this will drive improvements in admission processes and/or transitions of care both within the hospital and across the sector.

Note for patients who have transferred between clinical areas, wards or units and the PI occurred in another area or service within the hospital, the PI is still a HAPI and should be included. The individual stages of all PIs (both HAPIs and non-HAPIs) need to be submitted to the Commission but we will only report publicly on the prevalence of HAPIs by DHB.

Data about non-HAPIs will be used to inform wider, non-hospital quality improvement activities, such as in aged residential care and community care providers.

Providers should not include suspected deep tissue injuries and mucosal injuries in the count reported (see questions [19](#) and [20](#) for the reasons why).

A staging tool, [How to classify and document pressure injuries, is available here](#).

PIs can appear differently in skins of different tone; therefore, it is helpful to stage using a range of tools that reflect multicultural settings. [These tools are available here](#).

More information can be found [on the New Zealand Wound Care Society website](#) or [in this ACC leaflet](#).

11. How are HAPIs defined?

HAPIs are any stage of PI developed after admission to hospital or not captured on admission. Stage 1 PIs should always be reported as HAPIs because they can develop in a very short period of time.

Where an undocumented PI is found after admission, no matter what stage, it should be considered a HAPI because this is an important part of driving improvements in PI detection and management at admission.

Any PIs documented as part of admission are considered pre-existing (ie, non-HAPI).

12. How should DHB hospitals stage and report non-HAPIs?

Non-HAPIs should be staged and reported the same way as HAPIs but noted as non-HAPIs. This may require different data collection methods depending on the use of hospital coding and reporting systems.

13. Why should stage 1 PIs always be reported as HAPIs?

Stage 1 PIs should **always** be reported as HAPIs because they can develop in a very short period of time.

14. How will non-HAPIs be reported by the Commission?

We do not report non-HAPIs as part of DHB QSM reporting. Instead, the Commission and other agencies, such as ACC, use this information to work with regions with high numbers of non-HAPIs to identify where these PIs are coming from. This will inform work with the carers of those patients (for example, aged residential care facilities and/or community care providers) to reduce the incidence of and harm from non-HAPIs.

15. Why is the Commission interested in ALL PIs (acquired both in and outside hospitals)?

We want to know about **all** pressure injuries (excluding suspected deep tissue injuries and mucosal injuries – refer below), whether they are HAPIs or non-HAPIs.

Data about non-HAPIs helps us, and others such as ACC and DHBs (who have population-wide responsibilities and work with other providers, such as aged residential care providers, in their region), to focus efforts on reducing the incidence of and harm from pressure injuries that occur outside hospitals.

16. What if a patient has multiple PIs?

Count and report only the most severe PIs.

17. What if a patient has both a HAPI and a non-HAPI?

Count and report both the most severe HAPI and the most severe non-HAPI. This will mean the patient is, in effect, counted twice, but we need to understand the prevalence of both HAPIs and non-HAPIs. The information about non-HAPIs will be used to inform activity with the wider sector, such as community and aged residential care providers.

18. What is the difference between ‘prevalence’ and ‘incidence’, and why is the distinction important?

In any setting, patients may have a pre-existing PI (‘prevalent injury’) and may develop a new PI (‘incident injury’). Over a period of time, for example, one month, **incidence** measures the frequency of **new PIs developing** in that setting; **prevalence** measures the frequency of **all PIs present** during that period in that setting; this includes both new injuries that have developed within a setting and older injuries that developed within a setting but outside the measurement period.

It is hard to measure incidence without constantly counting. Prevalence is easier to measure because it can be a snapshot, for example, the count on one day. If the focus of the measure is on prevalence of PIs that occurred within the setting, for example, HAPIs, then it can be an estimate of incidence and thus provide a clearer estimate of the effects of PI prevention and management efforts.

Non-HAPIs must still be counted and reported to us, but in their own category. Information about non-HAPIs helps to inform quality improvement activity outside hospitals, for example, with aged residential care and/or community care providers.

19. What are suspected deep tissue injuries and why shouldn't they be reported through the QSM data?

Suspected deep tissue injuries are areas of discoloured intact skin, often purple- or maroon-coloured, or an intact blood blister, which may indicate underlying tissue damage associated with pressure that can develop into severe PIs.⁹ These lesions should be monitored to determine how they progress. Some evidence suggests many resolve themselves without developing into a skin break.¹⁰ However, they can signal deeper injuries.

Providers may collect and act on deep tissue injury information locally and can be reported to us as an adverse event.

20. What are mucosal injuries and why shouldn't they be reported to the Commission as PIs?

Mucosal injuries occur within a body opening, that is, moist membranes that line respiratory tract, gastrointestinal and genitourinary tracts, such as a nostril the mouth or urethra. They are usually associated with pressure from a device, for example, an endotracheal nasogastric tube, ostomy appliances and catheters.

The classification systems for PIs of the skin and underlying tissues cannot be used to categorise mucosal pressure injuries. However, where pressure is considered a significant factor for the cause of the mucosal wound it should still be recorded as a PI to enable local case review.¹¹ As there is currently no staging system for mucosal injuries, the international consensus is to not count mucosal injuries as PIs if they are within a body opening.

However, PIs associated with devices that occur outside a body opening, for example, on the nostril or lip, can be staged in the same way as standard PIs and should be reported.

21. Are unstageable PIs counted?

Yes, unstageable PIs are included, as the actual depth is unknown until the underlying structures can be visualised.

22. Why is the Commission interested in PI assessments and individualised care plans?

We want to prevent avoidable harm from PIs. To do this, prevention and management requires assessments of the patient's risk of developing a PI **and** an individualised care plan that responds to the findings of that assessment.

⁹ Sullivan R. 2013. A two-year retrospective review of suspected deep tissue injury evolution in adult acute care patients. *Ostomy Wound Management* 59(9): 30–9.

¹⁰ Cox J, Kaes L, Martinez M, et al. 2016. A prospective observational study to assess the use of thermography to predict progression from discoloured intact skin to necrosis among patients in a skilled nursing facility. *Ostomy Wound Management* 62(10): 14–33.

¹¹ See: *International Clinical Practice Guideline for the Prevention and Treatment of Pressure Ulcers/Injuries* (www.internationalguideline.com).

23. What is meant by the term current PI assessment?

A PI assessment involves documented assessment processes to establish what interventions might be needed to stop either the patient from developing a HAPI or an existing PI from deteriorating. Any assessment tool that considers patients' needs to prevent the development of a HAPI is suitable evidence of a documented assessment.

For the purposes of our PI QSM, a current assessment is one that evaluates recent patient need and has been conducted before the day of measurement and within the last seven days.

An evaluation of recent patient need depends on the patient's circumstances. It will usually take place within the week before the day of QSM data collection, assuming there has been no change in circumstances. For instance, in an older rehabilitation patient, an assessment that took place within the previous week will likely be current, unless the patient's condition has deteriorated, in which case a more recent assessment would be required. If an assessment had not taken place in response to the deterioration, then any assessment should not be considered current. If an assessment is not current, the individualised care plan is unlikely to be current.

24. What is meant by the term 'individualised care plan'?

An individualised care plan is a plan that responds to the assessed needs of the particular patient, is updated as the patient's status changes and shows evidence of identified needs being met. A current individualised care plan is one that responds to a current assessment of patient need (for example, within the last week or within reasonable proximity to a change in the patient's condition).

A current individualised care plan that meets the requirements for our QSM is one that documents and addresses the patient's PI(s), either existing or at risk of.

25. Why is the Commission also collecting demographic data (age, gender and ethnicity)?

The Commission's *Tauāki Koronga | Statement of Intent 2020–24* (SOI) sets out four strategic priorities for 2017–21, which underpin our planned activities for that period. One of these, strategic priority 2, is 'Improving health equity':

Different population groups receive unequal benefits from the health and disability system. We only have to look at life expectancy statistics to know this: while New Zealanders overall are living longer, there is a difference of more than five years in life expectancy between Māori and New Zealand European populations. Children are another population group that, being dependent on others for care, may not access the health services they need.

New Zealanders report economic barriers in accessing health care, which are increasing and becoming more common among Māori and people with low socioeconomic status.¹² We will contribute to a stronger understanding of health

¹² See: 2015 Health Survey (www.health.govt.nz/nz-health-statistics/national-collections-and-surveys/surveys/current-recent-surveys/new-zealand-health-survey).

equity through our measurement and evaluation reporting and tools, and will make improving equity part of our improvement initiatives, where possible.

This priority will help us to deliver the broader objective of achieving value and high performance from health spending.¹³

The SOI builds on previous strategic priorities with a commitment to base our work even more firmly on Te Tiriti o Waitangi, drawing strongly on mātauranga Māori and Māori worldviews.

Collecting age, gender and ethnicity information along with information about PI prevalence will continue to help us determine if there are inequities between population groups, and whether or not our activities reduce those inequities over time. The QSM reports from December 2020 display whether DHBs have submitted demographic data to us.

An audit of 15 DHBs in late 2020 identified 12 out of 15 were collecting demographic data as part of their routine PI QSM collection. Therefore, we ask all DHBs to [collect and submit demographic data using the collection tool here](#).

26. What method is used for collecting the PI process measure data?

Collecting data for the PI process measures involves reviewing the notes of the patients who are randomly selected for a complete skin check (as described in [question 27](#)) to determine whether they have had an appropriate (and current) PI assessment and individualised care planning processes completed. The same group of patients must be used for both the process and outcome measures.

Here is one approach to collecting the data:

1. Select a random sample of patients (with preference to use of an automated randomisation method see [question 28](#) below), with the size of the sample determined by the ward or unit size and excluding ineligible patients.
2. Process measure 1: Review the patient's notes to confirm if a PI assessment was done and is current.
3. Process measure 2: Where the assessment found the patient to be at risk of PI, review the patient's notes to confirm if a current individualised care plan is in place.
4. Outcome measures 1 and 2: Skin check.

27. What is the methodology for collecting the outcome data?

[Our methodology is here](#).

In summary, the methodology is to randomly select patients (see [question 28](#) on how to randomise) then carry out a complete skin check of bony prominences on those patients as part of normal rounds. This means the outcome data is collected prospectively and cannot be accurately collected retrospectively. The data for the process markers should be collected at the same time – via reviewing the patient's notes. We recommend DHB hospitals do the data collection (ie, review of notes and skin checks) at least monthly so they have the

¹³ See: www.hqsc.govt.nz/publications-and-resources/publication/4048, p 11.

appropriate number of patients per quarter to build up a picture of prevalence in as short a period as possible.

The methodology specifies that skin checks should be carried out on a minimum of five randomly selected patients for a ward or unit, assuming a ward size of about 22–25 beds. For smaller wards or units (eg, fewer than 15 beds), three randomly selected patients will be enough. For larger wards or units (eg, more than 30 beds), 7–10 randomly selected patients will be enough.

Some patients may be unavailable for the skin check, for example, if they meet an exclusion criterion or are on leave on the measurement day. Thus, DHBs may want to generate a slightly larger list of randomly selected patients for each ward each month so alternatives are available.

28. Why is random selection of patients important?

Random selection is important because it eliminates selection bias and therefore means the estimated prevalence is accurate. With random selection it is unpredictable who will be sampled, each patient has a known probability of being included in the surveillance and this approach produces a sample representative of the hospital census on the day. Non-random methods can lead to unrepresentative samples and thus unreliable estimates of prevalence.

Non-random methods include selection by last digit of the NHI number (odd or even), selection by specified bed space and selection by date of admission.

There are many ways to do random selection. It is best to work with your quality teams and/or business analysts to develop a suitable method for your hospital with the preference being the use of an automated method. Several DHBs have developed automated methods, generating a list from the midnight census, with the list of selected patients automatically being sent to the wards (for example, via email or printout) on the surveillance day. The DHBs that have developed this approach did so with support from their quality teams and/or business analysts.

29. What are the exclusions?

When the PI QSM was introduced, our proposed methodology allowed for some planned exclusions (that is, patients who should be excluded from selection or lists of selected patients), which remain current at 2021. The exclusions are:

- patients in emergency departments
- day-stay patients
- patients on last-days-of-life pathways
- patients in delivery suites
- patients in acute mental health units.

There may be other reasons why individual patients on participating wards should not be included and wards should exercise a common-sense approach to inclusion or exclusion in such circumstances.

30. Why exclude emergency department patients?

Many patients in emergency departments will leave without ever being admitted to the hospital; therefore, doing skin checks on these patients is not appropriate.

31. Why exclude day-stay patients?

Day-stay patients are not inpatients – the focus of the measurement approach is hospitalised patients.

32. Why exclude patients on last-days-of-life pathways?

Patient dignity and comfort are priorities at this time.

33. Why exclude the delivery suite?

It may not be appropriate for DHB staff to carry out skin checks of women while they're in labour.

34. Why exclude acute mental health?

Patient dignity and comfort, and staff safety are priorities, therefore doing skin checks on patients is not appropriate.

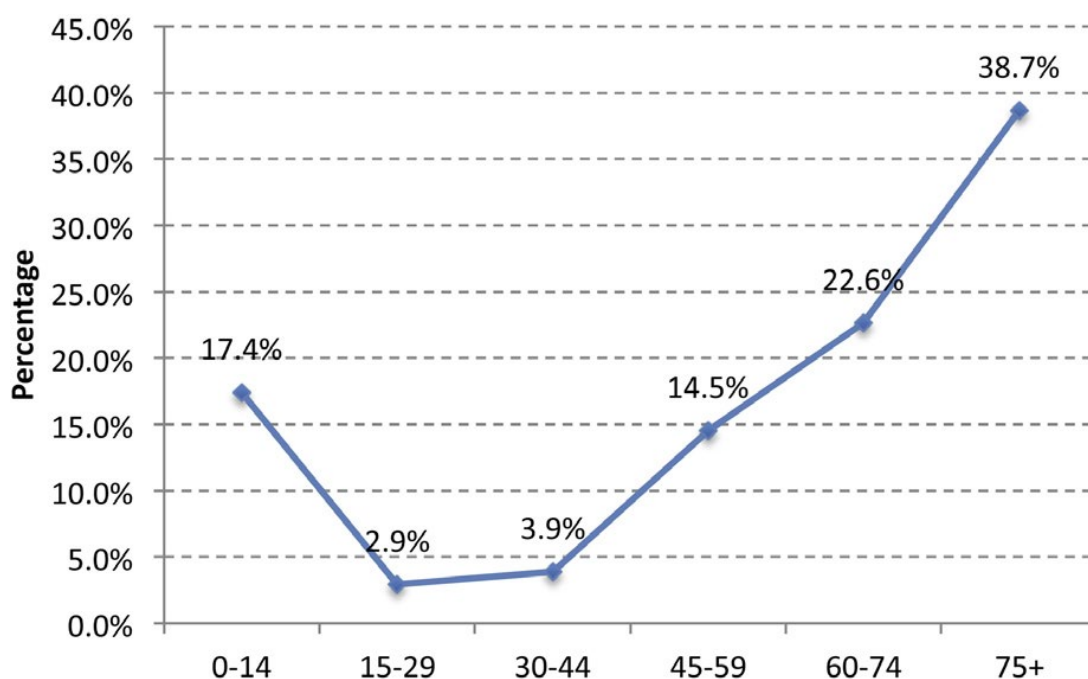
35. What are the inclusions?

All inpatient areas, with the exception of those noted as exclusions above, should be included in the surveillance.

36. Why include neonates?

Neonates and young children are vulnerable to device-related PIs that can develop rapidly into serious PIs. Published New Zealand evidence shows a J-shaped curve for association between age and pressure injury (Figure 1).

Figure 1: Percentage by age of all patients with a hospital-acquired pressure injury, March 2012 to February 2015¹⁴



37. Why include maternity?

Maternity units have typically been excluded from large-scale PI surveillance, as well as improvement programmes, mostly because of a belief that PIs do not occur in maternity units. Without the inclusion of maternity in a formalised surveillance effort, we cannot know the true extent of maternity PIs. Therefore, we recommend maternity patients, both antenatal and postnatal, be included in measurement efforts if they are inpatients.

38. Should PIs be treated as adverse events?

All stage 3 and 4 PIs should be considered adverse events and scored as severity assessment code (SAC) 2.¹⁵ Unstageable PIs or suspected deep tissue injuries should be reported as SAC 2 with the possibility of changing the rating after review of the event.

39. Using the QSM to drive system change

The results of the process and outcomes measures are to drive changes in behaviour or practice to reduce harm and improve patient outcomes. All hospitals should have a formal 'feedback loop' including the individual clinical areas and wards. This will enable both quality improvement initiatives to reduce harm from PIs, and acknowledgement of success when change has occurred.

¹⁴ Jull A, McCall E, Chappell M, et al. 2016. Measuring hospital-acquired pressure injuries: A surveillance programme for monitoring performance improvement and estimating annual prevalence. *Int J Nurs Studies* 58: 71–9.

¹⁵ SAC incidents have resulted in, or could have resulted in, serious harm or death. For further information on SAC classification of incidents, see www.hqsc.govt.nz/our-programmes/reportable-events/publications-and-resources/publication/636.