

# Results

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Results

The results of this survey are reported under the following 3 groupings or subpopulations:

'PUPPS 1' represents the state-wide data of all 48 health services who participated in PUPPS 1 in 2003.

'PUPPS 2' represents the state-wide data of the 84 health services who participated in PUPPS 2 in 2004. (Although 87 health services consented to participate in PUPPS 2, 3 of the 87 health services had no eligible patients on survey day and therefore did not submit any patient data).

'PUPPS CG' (Comparison Group) represents a subset of the 2004 PUPPS 2 results for the 48 health services that also participated in PUPPS 1. Excluded from the PUPPS CG subset of PUPPS 2 state-wide data are patients <18 years of age and those health services that did not participate in PUPPS 1.

The key findings of the PUPPS 2 survey are summarised below in Table 1. These findings and further results are expanded in the following sections. The results are presented as 'Part A' which contains the PUPPS 2 state-wide data and 'Part B' which contains the PUPPS CG data.

Finding	PUPPS 1	PUPPS 2	PUPPS CG	Change % PUPPS 1 to PUPPS 2 [PUPPS 1 to PUPPS CG]
Pressure ulcer point prevalence	26.5%	20.8%	22.7%	-5.7 [-3.8]
Pressure ulcer risk assessment tool (RAT) completed	40.9%	52.8%	57.7%	11.9 [16.8]
Primary associative risk factor	Immobility	Immobility	Immobility	Unchanged
Use of devices in patients with a pressure ulcer	66.1%	59.6%	60.5%	-6.5 [-5.6]
Hospital acquired pressure ulcers	67.6%	66.2%	66.1%	-1.4 [-1.5]
Documentation of pressure ulcer management	90.2%	45.0%	44.4%	-45.2 [-45.8]
Provision of information to patients regarding pressure ulcers	3.7%*	26.5%	22.0%	22.8 [18.3]

## Key Findings

Table 1. Key findings

# This contextual factor was reported for PUPPS 1 at health service level (4.2%) in the VOC State-wide Report - 2003, but is reported at site level in this analysis.

## Part B – PUPPS CG State-wide data

Results Part B-PUPPS CG presents a limited selection of data outlining results for the PUPPS Comparison Group (PUPPS CG). Not all sections, tables and graphs in the previous results, Part A-PUPPS 2, are presented, however, the sections, tables and graphs in this part are numbered to align with the previous results chapter. Numbering for sections, tables and graphs are therefore not consecutive and also contain the addition of CG in the heading. This is to assist with comparison and discussion between datasets.

**'PUPPS 1'** represents the state-wide data of all 48 health services who participated in PUPPS 1 in 2003.

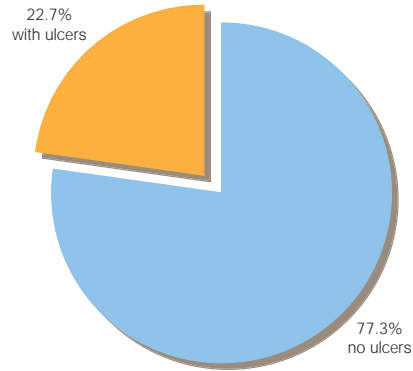
**'PUPPS CG'** (Comparison Group) represents a subset of the 2004 PUPPS 2 results for the 48 health services that also participated in PUPPS 1. Excluded from this subset of PUPPS 2 state-wide data are patients <18 years of age and those health services that did not participate in PUPPS 1.

# 1 Pressure Ulcer Point Prevalence PUPPS CG

## 1.1 State-wide prevalence PUPPS CG

The prevalence of pressure ulcers identified was 22.7% as represented in Graph 1aCG and Table 2aCG below.

*Graph 1aCG. Victorian state-wide prevalence PUPPS CG*



*Table 2aCG. Victorian state-wide prevalence PUPPS CG*

Group	Patient population	Patients refused	Patients seen	Patients with ulcers	Prevalence	95% confidence interval of prevalence
PUPPS 1	6,003	853	5,150	1,367	<b>26.5%</b>	25.3% - 27.7%
PUPPS CG	5,812	733	5,079	1,153	<b>22.7%</b>	21.6% - 23.9%

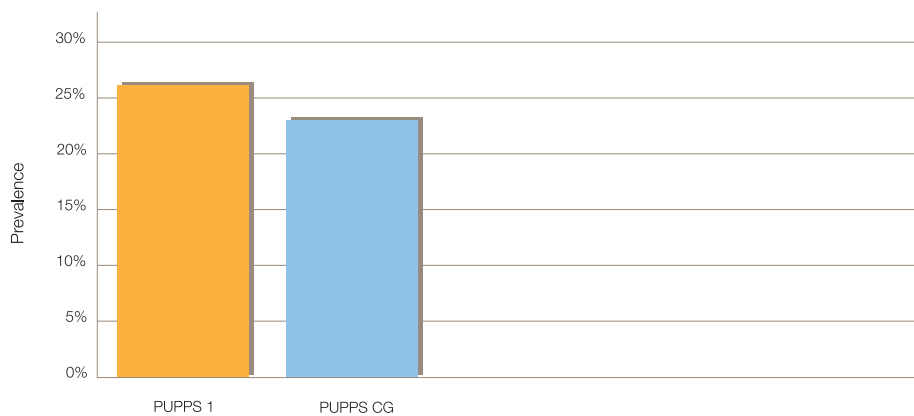
The prevalence of pressure ulcers excluding stage 1 pressure ulcers are presented below in Table 2bCG.

*Table 2bCG. Victorian state-wide prevalence PUPPS CG (excluding stage 1 pressure ulcers)*

Group	Patient population	Patients refused	Patients seen	Patients with ulcers	Prevalence	95% confidence interval of prevalence
PUPPS 1	6,003	853	5,150	882	<b>17.1%</b>	16.1% - 18.2%
PUPPS CG	5,812	733	5,079	819	<b>16.1%</b>	15.1% - 17.2%

The change in prevalence from PUPPS 1 (26.5%) to PUPPS CG (22.7%) is -3.8% (95% CI -5.5% to -2.2%) and is shown in Graph 1bCG. This is an improvement of 14.3%.

**Graph 1bCG. Change in state-wide prevalence PUPPS 1 to PUPPS CG**



**1.3 Pressure ulcer prevalence by DHS comparative groups PUPPS CG**

Table 3aCG benchmarks the Department of Human Services (DHS) comparative groups (See Key in Results Part A section 1.3). Each comparative group value is represented by the mean of each group as described in Table 3aCG.

Three groups were above the mean (range 3.1% to 10.9%) and four below (range 2.2% to 4.7%). Five comparative groups showed a decrease in prevalence from PUPPS 1 to PUPPS CG (range 0.9% to 9.7%).

Five comparative groups showed a decrease in prevalence from PUPPS 1 to PUPPS CG (range 0.9% to 9.7%). Two comparative groups (C, E&M) showed an increase in prevalence (range 5.1% to 5.6%).

**Table 3aCG. Pressure ulcer prevalence by DHS comparative groups PUPPS CG**

DHS comparative group	Patients refused PUPPS CG (%)	Patients seen PUPPS CG (%)	Patients with ulcers PUPPS CG	Prevalence PUPPS CG %	95% CI of prevalence %
A1	186 (12.1)	1351 (26.6)	348	25.8	23.5 – 28.2
A2	286 (18.1)	1293 (25.5)	244	18.9	16.8 – 21.1
B	137 (9.4)	1318 (25.9)	250	19.0	16.9 – 21.2
C	36 (11.6)	275 (5.4)	64	23.3	18.7 – 28.6
D	27 (11.8)	201 (4.0)	37	18.4	13.7 – 24.3
E&M#	1 (4.8)	39 (0.8)	8	20.5	9.5 – 26.5
Z	60 (9.1)	602 (11.9)	202	33.6	29.9 – 37.4
<b>Total</b>	<b>733 (100)</b>	<b>5,079 (100)</b>	<b>1,153</b>		

#Groups E & M were combined for the comparative benchmarking analysis

Table 3bCG shows the comparative group prevalence of PUPPS CG compared to PUPPS 1.

**Table 3bCG. Change in pressure ulcer prevalence by DHS comparative groups PUPPS CG**

DHS comparative group	Prevalence PUPPS 1% [Total patients seen]	Prevalence PUPPS CG % [Total patients seen]	Change PUPPS 1 to PUPPS CG % [p value]	95% CI of change %	
A1	31.0 [1,379]	25.8 [1,351]	-5.2 [0.00]	-8.7	-1.8
A2	19.8 [1,250]	18.9 [1,293]	-0.9 [0.63]	-4.5	2.7
B	23.8 [1,308]	19.0 [1,318]	-4.8 [0.05]	-9.7	0.1
C	18.2 [313]	23.3 [275]	5.1 [0.19]	-2.5	12.7
D	28.1 [228]	18.4 [201]	-9.7 [0.01]	-17.4	-2.0
E&M#	14.9 [47]	20.5 [39]	5.6 [0.07]	-9.2	20.3
Z	40.5 [625]	33.6 [602]	-6.9 [0.10]	-15.3	1.4

#Groups E & M were combined for the comparative benchmarking analysis

**1.4 Pressure ulcer prevalence by medical specialty PUPPS CG**

Table 4bCG presents the change in pressure ulcer prevalence of each medical specialty group from PUPPS 1 to PUPPS CG.

**Table 4bCG. Change in pressure ulcer prevalence by medical specialty PUPPS CG**

Medical specialty	PUPPS 1 % prevalence within specialty	PUPPS CG % prevalence within specialty	Change PUPPS 1 to PUPPS CG [p value]	95% CI of change %	
Spinal	41.4	62.1	20.7 [0.01]	6.1	35.3
Palliative Care	37.6	45.1	7.5 [0.15]	-2.8	17.7
Rehabilitation	29.9	28.1	-1.1 [0.79]	-9.1	6.9
Emergency Medicine	13.2	31.0	17.8 [0.04]	0.7	35.0
Critical Care	47.7	39.8	-7.9 [0.19]	-19.8	3.9
Medical	27.8	22.6	-5.2 [0.00]	-8.2	-2.2
Surgical	22.4	17.4	-4.8 [0.03]	-9.1	-0.5
Other	20.0	0.0	-20.0 [0.19]	-50.0	-10.0
Obstetric	1.1	0.0	-1.1 [0.16]	-2.7	0.5
Missing data	53.8	37.5	-16.3 [0.40]	-54.7	22.0

### 1.5 Distribution of pressure ulcers per patient PUPPS CG

The survey identified 1,153 patients with ulcers. Patients with more than 1 ulcer accounted for 46.2% (n = 533) of all patients with ulcers, and 21% (n = 242) of those had more than 2 ulcers. In the PUPPS CG population 2 patients had 10 or more ulcers, as per Table 5CG below.

Compared to PUPPS 1 there are more people with only 1 ulcer and fewer with multiple ulcers. The distribution of pressure ulcers per patient represents a decrease of 3.5% in the number of patients with more than 1 ulcer.

*Table 5CG. Distribution of pressure ulcers per patient PUPPS CG*

Number of pressure ulcers per patient	Number of patients with pressure ulcers	Number of pressure ulcers	% of all patients with pressure ulcers
1	620	620	53.8
2	291	582	25.2
3	132	396	11.5
4	56	224	4.9
5	24	120	2.1
6	13	78	1.1
7	5	35	0.4
8	5	40	0.4
9	4	36	0.4
10	1	10	0.1
11	0	0	0.0
12	0	0	0.0
13	1	13	0.1
14	0	0	0.0
Missing	1	0	0.1
<b>Total</b>	<b>1,153</b>	<b>2,154</b>	<b>100.0</b>

### 1.6 Severity of pressure ulcers PUPPS CG

#### Severity of pressure ulcers by stage PUPPS CG

In total, 2,154 pressure ulcers were found in this subpopulation on 1,153 patients. Stage 1 and Stage 2 pressure ulcers comprised 82.3% (n = 1,837) of ulcers. Pressure ulcers classified as Stages 3 and 4 represented 14.7% (n = 317) of ulcers found (refer to definitions of pressure ulcer staging Appendix B). Table 6CG summarizes the severity of press ulcers by stage for PUPPS CG and shows the changes from PUPPS 1 to PUPPS CG. The proportion of Stage 1 ulcers decreased, Stage 4 ulcers remained the same and the proportion of the remaining ulcers increased.

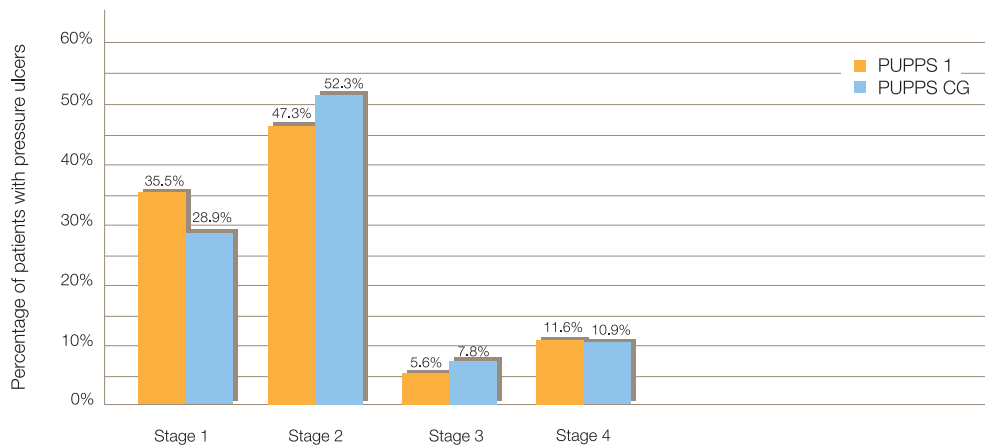
*Table 6CG. Severity of pressure ulcers by stage PUPPS CG*

Pressure ulcer stage	% (patients) of all pressure ulcers PUPPS 1	% (patients) of all pressure ulcers PUPPS CG	Change in % of all pressure ulcers PUPPS 1 to PUPPS CG	p value
1	43.1 (1,153)	37.3 (804)	-5.8	<0.001
2	44.2 (1,183)	48.0 (1,033)	3.8	<0.001
3	4.5 (120)	6.6 (141)	2.1	<0.001
4	8.2 (220)	8.2 (176)	0.0	<0.001
<b>Total</b>	<b>100.0</b>	<b>100.0</b>		

### Severity of pressure ulcers by highest stage PUPPS CG

Pressure ulcers were found in 1,153 patients. Graph 8CG shows the proportion of patients noting the severity of their highest stage of ulcer per patient. The PUPPS CG result demonstrates a 6.6% decrease in Stage 1 pressure ulcers and a 0.7% decrease in Stage 4 pressure ulcers. There was a 5.0% increase in Stage 2 pressure ulcers and a 2.2% increase in Stage 3 pressure ulcers as compared to PUPPS 1. Patients with a Stage 3 or 4 pressure ulcer represent 18.7% (n = 216) of the population, and Stage 1 and 2 pressure ulcers represent 81.2% (n = 936). Data was missing for 0.1% (n = 1).

*Graph 8CG. Change in severity of pressure ulcers by highest stage of pressure ulcers PUPPS 1 to PUPPS CG*



### 1.8 Anatomical distribution of pressure ulcers PUPPS CG

Table 7CG details the percentage and number of pressure ulcers found at each anatomical location for the 2,154 pressure ulcers found in 1,153 patients. The following locations accounted for 66.0% (n = 1,422) of the ulcers found: sacrum/coccyx (21.2%, n = 456), heel (21.0%, n = 453 ulcers), toes (14.0%, n = 301), ischium/buttocks (9.8%, n = 212). As with PUPPS 1, the sacrum/coccyx and heel remain the most common sites for the development of pressure ulcers.

Utilising broader anatomical groupings the lower limb accounts for 49.8% (n = 1,073) and pelvic girdle for 32.1% (n = 692) of all pressure ulcers found.

**Table 7CG. Anatomical distribution of pressure ulcers PUPPS CG**

Anatomical location	PUPPS CG number of ulcers at this location	PUPPS CG % of all ulcers observed	PUPPS CG number of patients with ulcer at this location	PUPPS CG % of patients with ulcers at this location	Change in % of all ulcers identified PUPPS 1 to PUPPS CG
Sacrum/Coccyx	456	21.2	402	34.8	0.8
Heel	453	21.0	349	30.3	-1.8
Toes	301	14.0	224	19.4	1.0
Ischium/Buttocks	212	9.8	157	13.6	0.2
Foot	143	6.6	97	8.4	2.2
Elbow	138	6.4	117	10.1	1.1
Ear	101	4.7	80	6.9	-0.2
Lateral malleolus	88	4.1	74	6.4	0.0
Leg #	52	2.4	40	3.5	N/a
Spinous process	33	1.5	30	2.6	-0.4
Medial malleolus	23	1.1	20	1.7	-0.4
Greater trochanter	24	1.1	16	1.4	-0.3
Scapula	19	0.9	15	1.3	0.3
Knee	13	0.6	9	0.8	-0.6
Nose	9	0.4	9	0.8	-0.5
Occiput	8	0.4	8	0.7	0.3
Iliac crest	11	0.5	9	0.7	0.2
Chin	2	0.1	2	0.2	0.0
Fingers	5	0.2	5	0.4	-0.3
All other locations	63	2.9	51	4.4	-4.3
<b>Total</b>	<b>2,154</b>	<b>100.0</b>			

*#The anatomical location 'leg' was not used in PUPPS 1. Note: The "% of patients with ulcers" column does not sum to 100 as patients may have ulcers at multiple sites.*

## 2 Pressure ulcer risk assessment PUPPS CG

### 2.1 Frequency of assessment

Table 9CG shows the use of pressure ulcer risk assessment tools in the health services surveyed. Over half of the surveyed population (57.7%, n = 3,319) had evidence of a pressure ulcer risk assessment being performed. This is an increase of 16.8% from PUPPS 1 (p = 0.001). Again, the tool used was spread between three internationally

recognised and validated tools (Braden, Waterlow and Norton<sup>2</sup>) and in-house tools. The recorded risk was medium to very high in 33.7% (n = 1,117) of the population with 64.2% (n = 2,131) assessed as having low or no risk. Risk class data was missing or not recorded for 2.1% (n = 71) of the risk assessments performed.

Table 9CG. Pressure ulcer risk assessment PUPPS CG

	Number of patients	Proportion
Risk assessment performed	3,319	57.7% of the cohort#
Tool used		% of those with a risk assessment
Validated tool	2,476	74.6
Other tool (includes in-house)	712	21.4
Not stated	131	4.0
<b>Total</b>	<b>3,319</b>	<b>100.0</b>
Risk class		% of those with this risk class score
No risk	883	26.6
Low	1,248	37.6
Medium	488	14.7
High	440	13.3
Very high	189	5.7
Missing data	71	2.1
<b>Total</b>	<b>3,248 (97.9%) class reported</b>	<b>100.0</b>

**2.2 Risk assessment and pressure reducing/relieving devices PUPPS CG**

As with PUPPS 1, the results indicate that the higher the level of risk assessed on the screening tool, the more likely that a pressure reducing/relieving device was found insitu (see Table 10CG). This may indicate that patients who had a pressure ulcer risk assessment completed had been subjectively deemed to be at higher risk than other patients, or that

hospital sites where assessment was regularly performed were also more likely to regularly use pressure reducing/relieving devices in their prevention strategies.

Across the total population there was a 9.0% decrease in patients with a pressure relieving/reducing device in situ from PUPPS 1 to PUPPS CG.

*Table 10CG. Risk assessment and pressure reducing/relieving devices CG*

Risk class	Number of patients	Number of patients with pressure reducing/relieving device insitu	% patients with pressure reducing/relieving device insitu
<b>Risk assessment performed</b>			
No risk	811	290	35.8
Low	1,141	492	43.1
Medium	429	256	59.7
High	365	248	67.9
Very high	160	120	75.0
Missing data (assessment done, but no class recorded)	62	18	29.0
<b>Total risk assessment performed</b>	<b>2,968</b>	<b>1,424</b>	<b>48.0</b>
No risk assessment performed	2,082	841	40.4
Missing data (not known if assessment done)	29	13	44.8
<b>Total all patients</b>	<b>5,079#</b>	<b>2,278</b>	<b>44.9</b>

Table 11CG details information on risk assessment, presence of a pressure reducing/relieving device and the presence of a pressure ulcer for PUPPS CG.

Of the patients assessed as “no risk or low risk” of developing a pressure ulcer, 394 had a pressure ulcer (prevalence of 20.4%). Of the patients not assessed in the PUPPS CG group, 40.9% had devices insitu which may indicate some form of clinical assessment had been performed.

Of those patients with pressure ulcers 60.5% (n = 697), had a pressure relieving device in situ. For 517 of the PUPPS CG patients assessed in the “high or very high risk” category 149 (25.4%) had no device insitu yet 48 (8.2%) of these patients had at least one pressure ulcer.

For patients in the both the “devices insitu” and “no devices insitu” group there is an increase in the rates of pressure ulcer in patients who have higher risk screening scores.

**Table 11CG. Risk assessment, devices and pressure ulcers PUPPS CG**

Risk class	Total	Devices insitu			No devices insitu		
		Patients with device	Patients with ulcer	Prevalence PUPPS CG (PUPPS 1)	Patients with no device	Patients with ulcer	Prevalence PUPPS CG (PUPPS 1)
No risk	803	290	43	14.8% (1.6%)	513	51	9.9% (9.9%)
Low	1,132	492	132	26.8% (22.7%)	640	94	14.7% (16.3%)
Medium	421	256	90	35.2% (38.7%)	165	54	32.7% (22.1%)
High	361	248	166	66.9% (47.6%)	113	34	30.1% (37.3%)
Very high	156	120	66	55.0% (54.9%)	36	14	38.9% (27.8%)
Not recorded	62	18	6	33.3% (44.9%)	44	6	13.6% (26.8%)
No assessment	2,058	841	242	28.8% (34.3%)	1,217	183	15.0% (18.8%)
Missing data	29	13	2	15.4% (54.5%)	16	3	18.8% (25.0%)
<b>Totals</b>	<b>5,022#</b>	<b>2,278</b>	<b>697</b>		<b>2,744</b>	<b>439</b>	

#Of the patients who consented to a skin inspection (5,079), the presence or absence of a pressure reducing/relieving device was not recorded for 57 patients, which included 17 patients with pressure ulcers. These patients are not included in this analysis.

## 3 Devices PUPPS CG

### 3.1 Pressure reducing/relieving devices PUPPS CG

No devices were in place for 439 patients (38.1%) who had ulcers including 48 (4.2%) who had either a Stage 3 or a Stage 4 as their highest stage of pressure ulcer (see Table 12CG). The majority of patients had a device in situ 60.4% (n = 696). Data was missing for 1.1% of patients (n = 57). The data here demonstrates a small decrease in the proportion of patients surveyed with a device insitu from PUPPS 1.

Data was not collected on the appropriateness of devices relative to the risk or stage of pressure ulcer found. Some patients had more than one type of device in situ.

Table 12CG. Pressure reducing/relieving devices PUPPS CG

Number of patients with device in situ (%)		Number of patients (%) with Highest Stage of pressure ulcers				
Device		Stage 1 (%)	Stage 2 (%)	Stage 3 (%)	Stage 4 (%)	Total (%)
Comfort/ adjunct	657 (12.9)	51 (23.3)	111 (50.7)	25 (11.4)	32 (14.6)	219 (100)
Cushions & overlays static	694 (13.7)	61 (30.0)	110 (54.2)	16 (7.9)	16 (7.9)	203 (100)
Cushions & overlays dynamic	137 (2.7)	9 (13.85)	37 (56.9)	9 (13.85)	10 (15.4)	#65 (100)
Replacement mattresses static	1,195 (23.5)	91 (31.1)	158 (53.9)	17 (5.8)	27 (9.2)	293 (100)
Replacement mattresses dynamic	334 (6.6)	40 (23.1)	86 (49.7)	14 (8.1)	33 (19.1)	173 (100)
Specialty beds	46 (0.9)	6 (31.6)	9 (47.4)	0 (0.0)	4 (21.0)	19 (100)
<b>Total device insitu</b>	<b>2,278 (44.9)</b>	<b>183 (26.3)</b>	<b>375 (53.9)</b>	<b>58 (8.3)</b>	<b>80 (11.5)</b>	<b>696 (100)</b>
Number of patients with no device insitu (%)						
No device	2,744 (54.0)	146 (33.3)	222 (50.5)	28 (6.4)	43 (9.8)	439 (100)
Missing data	57 (1.1)	4 (23.5)	6 (35.3)	4 (23.5)	3 (17.7)	17 (100)
<b>Total</b>	<b>5,079</b>					<b>1,153##</b>

#The number of patients with ulcers on dynamic cushions and overlays only add up to 66. This is because data for one patient with an ulcer and a pressure reducing/relieving device in situ did not contain any information on the number, stage or location of ulcers.

##The total number of patients is 1 less than the expected overall total (1,154) due to the missing data noted above.

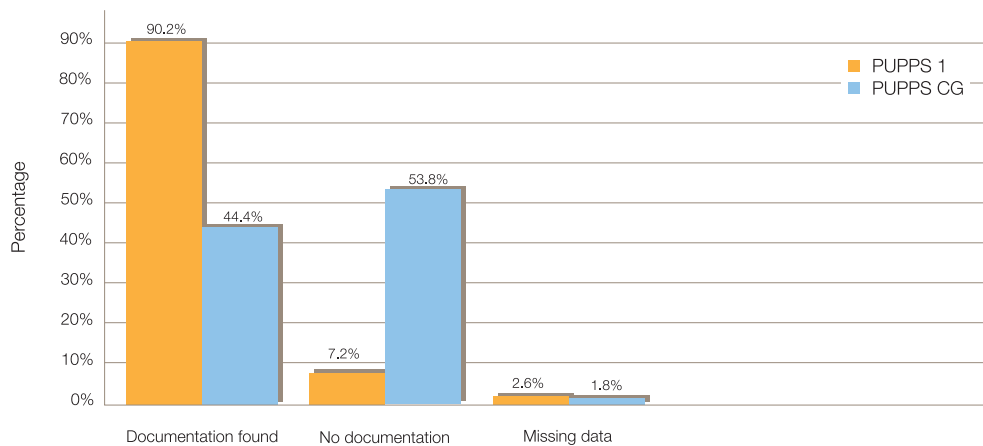
## 4 Documentation of pressure ulcer management PUPPS CG

In order to determine if there was documentation related to the progress or management of pressure ulcers identified in the survey population an audit of the medical record of patients with pressure ulcers was completed. Documentation was deemed to have been identified if written notation regarding any of the ulcers identified was found in any part of the medical record on the survey day or the 4 days prior. This documentation could be noted in general medical progress notes, nursing care plans, clinical pathway and wound care charts, see Graph 12CG below.

Documentation related to the progress and management of pressure ulcers was found in 44.4% (n = 512) of patients. No documentation was found in 53.8% (n = 620) of patients and data was missing in 0.7% (n = 8) of cases. This result represents a significant decrease from the PUPPS 1 result where 90.2% of patients had some documentation related to their pressure ulcer management (see Graph 12CG below).

The data did not identify if the documentation noted one, some or all of the ulcers identified on the patient on survey day.

*Graph 12CG. Documentation of pressure ulcer management PUPPS CG*



## 7 Contextual data PUPPS CG

The contextual data audit was completed by all health services prior to the education and survey days of PUPPS 2. The information is self-reported and therefore likely to have a subjective component. For all 48 health services, only data from sites involved in both surveys were analysed. Changes in contextual data from PUPPS 1 to PUPPS CG are noted in Table 16CG.

An increase in positive responses was seen across almost all contextual measures from PUPPS 1 to PUPPS 2. Analysis of the relationship of this data to pressure ulcer prevalence is problematic given the binary nature of the responses (either yes or no) and the use of the 82 health service sites as units despite the obvious operating differences between small rural and large metropolitan health services.

Although 81.7% of health services had an organisation wide strategy to reduce hospital acquired pressure ulcers, a smaller proportion (70.7%) had existing protocols and policies for the prevention and management of pressure ulcers.

A Pressure Ulcer (or Wound Management) committee was present in 78.0% of Health Services and 67.1% have an Executive Sponsor.

Health services that actively involved 2 or more Allied Health disciplines in their pressure ulcer prevention and management strategies accounted for 52.4% of the group.

The Australian Wound Management Association's Clinical Practice Guidelines for the Prediction and Prevention of Pressure Ulcers<sup>2</sup>, which use designated levels of evidence as recommended by the National Health and Medical Research Council, was used by 76.8% of health services as the basis for their policies and strategic plan for pressure ulcers.

Pressure ulcer prevention literature is supplied to patients in 22.0% of health services.

Specialist wound management staff with specific hours dedicated to this role remained stable, and were present in 46.3% of health services. As with the PUPPS 2 group, a larger proportion of health services have a staff member who has wound management or pressure ulcers as part of their clinical portfolio, but have no dedicated hours attached to their role.

Collecting pressure ulcer data as part of clinical risk management programs are performed by 72.0% of health services surveyed. Pressure ulcer risk assessment tools are used by 92.7% of health services and 100% of these require risk assessment to be performed on admission. 67.1% of sites stated that recommended interventions for the prediction and prevention of pressure ulcers according to level of assessed risk are implemented.

Mattress replacement programs were occurring in 86.6% of health services.

Table 16CG. Change in quantitative contextual data PUPPS CG

Factors or strategies	PUPPS 1#	PUPPS CG	Change PUPPS 1 to PUPPS CG	95% CI of change		p value
Existing protocols and policies on pressure ulcers in place	35.4%	70.7%	35.4%	22.9%	47.8%	< 0.001
Education or program on pressure ulcer prevention and management in place	40.2%	70.7%	30.5%	17.5%	43.5%	< 0.001
AWMA clinical guidelines (or similar) in use	48.8%	76.8%	28.0%	16.1%	40.0%	< 0.001
Patient literature regarding pressure ulcers in use	3.7%#	22.0%	18.3%	8.6%	28.0%	< 0.001
Pressure reduction mattress replacement program	46.3%	86.6%	40.2%	29.0%	51.5%	< 0.001
Specialist wound management staff with allocated time	46.3%	46.3%	0.0%##	-10.2%	10.2%	1.000
Active wound or pressure ulcer committee	61.0%	78.0%	17.1%	6.4%	27.7%	0.002
Pressure ulcer data collected as part of clinical risk management program	46.3%	72.0%	25.6%	14.4%	36.8%	< 0.001

# This contextual factor was reported for PUPPS 1 at health service level (4.2%) in the VQC State-wide Report – 2003, but is reported at site level in this analysis.

## A large number of smaller health services participated in PUPPS 2 and a large number of staff have wound or pressure management as their portfolio but with no additional time allocation.