Australasian College
for Emergency Medicine

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Report
July 2022

2021 Annual Site Census Part Two:
Emergency department resources, services, training and teaching

Australasian College for Emergency Medicine

Key Findings: 2021 Annual Site Census

Part two: emergency department resources and services

The Australasian College for Emergency Medicine's 2021 Annual Site Census was distributed to all 147 ACEM-accredited Emergency Departments (EDs); all participated. Part two of the report focuses on ED resources, ED/ hospital services, staff training, and ultrasound teaching.

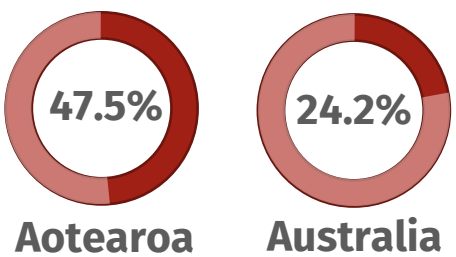
All 147 EDs in Australia and Aotearoa reported having resuscitation and emergency or acute treatment spaces.

A ***higher*** percentage of Australian EDs (70.3%) than Aotearoa EDs (63.1%) reported having ***mental health treatment spaces.***

Australian EDs had a **lower** ratio of attendances per bed or chair (1219 attendances per bed/ chair) decreasing by **1.4%** from the 2016 Census, compared with Aotearoa EDs (1409 attendances per bed/ chair) which has increased by **11.1%**.

A **higher** percentage of Aotearoa EDs reported having implemented various ***sustainability practices*** compared to Australian EDs.

	Aotearoa	Australia
Environmental Sustainability Officer	78.9%	50.4%
Formal Environmental Sustainability Plan	63.2%	40.9%
Quantified CO_2 Emissions	63.2%	30.7%



A higher percentage of Aotearoa EDs were a

Designated Major Trauma Service

For the full findings, please refer to:
Australasian College for Emergency Medicine (2022),
2021 Annual Site Census Report - Part 2: ED resources and services

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1. Executive Summary

1.1 Background

This report presents the findings from the Australasian College for Emergency Medicine's (ACEM's) Annual Site Census, which was distributed to Directors of Emergency Medicine (DEMs) and Directors of Emergency Medicine Training (DEMTs) at 147 ACEM-accredited emergency departments (EDs) in September 2021. The Census is a joint initiative by the Research Unit within the Policy, Research and Partnerships Department, and the Accreditation Unit within the Training Department. This report presents the findings on ED resources, hospital services, staff training and ultrasound teaching.

1.2 Summary of Findings

All of the 147 ACEM-accredited EDs (128 in Australia and 19 in Aotearoa New Zealand) completed the 2021 Census.

1.2.1 ED Resources

- All responding EDs reported having resuscitation and adult and/or paediatric emergency/acute treatment spaces. While 92.5% had low acuity, sub-acute or fast track treatment spaces, and 88.4% had a Short Stay Unit (or equivalent). A smaller proportion (69.4%) reported having ED Mental Health Assessment spaces.
- Australian EDs had, on average, a lower ratio of attendances to beds or chairs (1219 attendances per one bed/ chair), compared with Aotearoa EDs (1409 attendances per one bed/ chair).
- All Aotearoa and 89.8% of Australian EDs reported having at least one negative pressure room for infection control.

1.2.2 ED and/or Hospital Designated Staff and Services

- Overall, a higher proportion of Aotearoa EDs reported the availability of various sustainability practices than Australian EDs, including having a formal Environmental Sustainability Plan (63.2% vs. 40.9%) and making efforts to quantify carbon dioxide emissions (63.2% vs. 30.7%).
- Just under one-quarter of accredited Australian EDs (24.2%) and under half of Aotearoa EDs (47.4%) were designated as a Major Trauma Service.
- Overall, 52.4% of EDs reported having an on-site Cardiac Catheter Laboratory available for urgent Percutaneous Coronary Intervention for ST-Elevation Myocardial Infarction. The highest percentages were in Major hospitals (100%) and Private hospitals (90.9%) in Australia, and Metropolitan hospitals in Aotearoa (85.7%).

1.2.3 Staff Training

- Cultural competency training was available for staff in all Aotearoa EDs and 98.4% of Australian EDs.
- Discrimination, bullying, sexual harassment and harassment training was available to almost all Aotearoa EDs (94.4%) and Australian EDs (98.4%).

1.2.4 Ultrasound Teaching

- Aotearoa saw a 31.6% and Australia saw a 15.4% increase since 2019 in the mean number of ultrasound machines in operation in EDs, a mean of 2.5 and 3.0 respectively.
- Over half (57.9%) of Aotearoa EDs and just under half (46.1%) of Australian EDs reported having a formal ultrasound training program.
- In both Australia and Aotearoa, approximately one-third of EDs reported that a quality assurance review was not performed on ultrasound examinations in their ED.

2. Purpose and Scope

The purpose of this report is to provide the findings from the Australasian College for Emergency Medicine's (ACEM's) Annual Site Census, specifically on the sections relating to ED resources and services, ED staff training, and ultrasound teaching. The Census is distributed annually to all Australian and Aotearoa New Zealand emergency departments (EDs) accredited by ACEM, with the findings used to monitor accredited sites as well as provide an evidence-base for ACEM policy and advocacy activities relating to ED workforce and functioning.

3. Methodology

The Census is a mandatory activity for ACEM-accredited EDs, and it was distributed via email to all 147 accredited EDs in Australia and Aotearoa New Zealand in September 2021. The 2021 Census contained questions on ED staffing and rostering, casemix and performance, resources and services. ED casemix and performance data were sought for the period 1 July 2020 to 30 June 2021, with all other data being current at the time of completing the survey. For a full methodology, see part one of the report (ACEM, 2022). Refer to Appendix 1 for the survey tool.

4. Results

This section presents the findings from the 2021 Annual Site Census, and includes findings relating to ED treatment spaces, infection control spaces, sustainability practices, ED and hospital services, as well as staff training and ultrasound teaching.

4.1 Profile of Participating EDs

All of the 147 accredited EDs completed the 2021 Annual Site Census. Table 1 displays the breakdown of EDs by region in Australia and Aotearoa New Zealand, and further breakdown by peer group within each region.

Table 1: Distribution of participating EDs, by region and hospital peer group.

	n	Region (%)	Total (%)
Australia	128		87.1%
New South Wales	42		28.6%
Major	11	26.2%	
Large metropolitan	10	23.8%	
Medium metropolitan	6	14.3%	
Large regional	9	21.4%	
Medium regional	2	4.8%	
Small regional	1	2.4%	
Private	1	2.4%	
Specialist	2	4.8%	
Victoria	30		20.4%
Major	6	20.0%	
Large metropolitan	7	23.3%	
Medium metropolitan	5	16.7%	
Large regional	5	16.7%	
Medium regional	1	3.3%	
Private	5	16.7%	
Specialist	1	3.3%	
Queensland	29		19.7%
Major	6	20.7%	
Large metropolitan	6	20.7%	
Medium metropolitan	3	10.3%	
Large regional	6	20.7%	
Medium regional	3	10.3%	
Private	4	13.8%	
Specialist	1	3.4%	
Western Australia	12		8.2%
Major	3	25.0%	
Large metropolitan	4	33.3%	
Medium metropolitan	1	8.3%	
Medium regional	2	16.7%	
Private	1	8.3%	
Specialist	1	8.3%	
South Australia	7		4.8%
Major	2	28.6%	
Large metropolitan	3	42.9%	
Medium metropolitan	1	14.3%	
Specialist	1	14.3%	
Tasmania	3		2.0%
Major	1	33.3%	
Large regional	2	66.7%	
Northern Territory	3		2.0%
Major	1	33.3%	
Large regional	1	33.3%	
Small regional	1	33.3%	
Australian Capital Territory	2		1.4%
Major	1	50.0%	
Large metropolitan	1	50.0%	
Aotearoa	19		12.9%
Metropolitan	6	31.6%	
Regional	12	63.2%	
Specialist	1	5.3%	
Total	147		100.0%

4.2 ED Resources

4.2.1 ED Treatment Spaces

All EDs reported having resuscitation treatment spaces and adult and/or paediatric emergency or acute spaces (Table 2). Not all of the accredited EDs in Australia and Aotearoa reported having low acuity, sub-acute or fast track spaces (93.0%, n= 119/128 and 89.5%, n= 17/19, respectively) and a short-stay unit (SSU) or equivalent treatment space (89.8%, n= 115/128 and 78.9%, n= 15/19, respectively). A lower proportion of accredited EDs in Australia (70.3%, n= 90/128) and Aotearoa (63.1%, n= 12/19) reported having mental health assessment treatment spaces, compared to the 2020 Census (75.4% and 78.9%, respectively). Overall, the average number of beds/chairs available for the individual treatment spaces in Australian and Aotearoa EDs remained relatively consistent compared with the 2020 Census, with a difference of n <1, except for the emergency/ acute spaces in Aotearoa EDs, which increased from 21.3 to 23.4.

Table 2 EDs with specific treatment spaces and average number of beds or chairs available within each treatment space, by region.

	Resuscitation		Adult and/or Paediatric Emergency/ Acute		Low acuity/ sub-acute/ fast-track		SSU (or equivalent)		ED mental health assessment	
Region	n	mean (range)	n	mean (range)	n	mean (range)	n	mean (range)	n	mean (range)
Australia	128	3.6 (1.0 – 15.0)	128	22.3 (3.0 – 63.0)	119	9.8 (1.0 – 32.0)	115	12.2 (2.0 – 32.0)	90	2.2 (1.0 – 14.0)
NSW	42	3.2 (1.0 – 9.0)	42	20.8 (7.0 – 47.0)	40	11.1 (4.0 – 32.0)	35	8.4 (2.0 – 19.0)	31	1.8 (1.0 – 6.0)
VIC	30	3.5 (1.0 – 9.0)	30	22.6 (4.0 – 50.0)	26	8.0 (1.0 – 19.0)	27	15.4 (4.0 – 32.0)	18	1.9 (1.0 – 6.0)
QLD	29	4.1 (1.0 – 14.0)	29	21.7 (3.0 - 41.0)	26	9.4 (3.0 – 19.0)	27	13.6 (2.0 – 27.0)	20	2.5 (1.0 – 9.0)
WA	12	4.4 (1.0 – 15.0)	12	21.5 (9.0 – 51.0)	12	9.8 (4.0 – 25.0)	11	13.4 (4.0 – 23.0)	7	3.6 (1.0 – 10.0)
SA	7	3.7 (2.0 – 6.0)	7	33.3 (19.0 – 63.0)	7	11.6 (6.0 – 21.0)	7	12.9 (5.0 – 22.0)	6	1.7 (1.0 – 3.0)
TAS	3	3.0 (2.0 – 4.0)	3	21.3 (13.0 – 28.0)	3	9.0 (4.0 – 18.0)	3	9.3 (4.0 – 16.0)	3	1.3 (1.0 – 2.0)
ACT	2	3.5 (2.0 – 5.0)	2	29.0 (20.0 – 38.0)	2	11.5 (10.0 – 13.0)	2	18.5 (18.0 – 19.0)	2	9.0 (4.0 – 14.0)
NT	3	2.3 (2.0 – 3.0)	3	21.3 (18.0 – 27.0)	3	7.7 (6.0 – 11.0)	3	9.3 (8.0 – 12.0)	3	2.0 (1.0 – 4.0)
Aotearoa	19	3.5 (2.0 – 7.0)	19	23.4 (8.0 – 57.0)	17	8.2 (2.0 – 16.0)	15	8.6 (2.0 – 36.0)	12	1.7 (1.0 – 3.0)
Total	147	3.6 (1.0 – 15.0)	147	22.5 (3.0 – 63.0)	136	9.6 (1.0 – 32.0)	130	11.8 (2.0 – 36.0)	102	2.2 (1.0 – 14.0)

Table 3 reports specific ED treatment spaces and the average number of beds/ chairs available within these treatment spaces by hospital peer group. All Australian Specialist EDs reported having mental health assessment treatment spaces; in contrast, none of the Private EDs reported having one. Only half (6/12) of Aotearoa Regional EDs, compared with 87.9% (29/33) of Regional EDs in Australia, reported having mental health assessment spaces in their EDs.

Table 3 EDs with specific treatment spaces and average number of beds or chairs available within each treatment space, by hospital peer group.

Hospital peer group	Resuscitation n	Resuscitation mean (range)	Adult and/or Paediatric Emergency/ Acute n	Adult and/or Paediatric Emergency/ Acute mean (range)	Low acuity/sub-acute/fast-track n	Low acuity/sub-acute/fast-track mean (range)	SSU (or equivalent) n	SSU (or equivalent) mean (range)	ED mental health assessment n	ED mental health assessment mean (range)
Australia										
Major	31	6.0 (2.0 – 15.0)	31	30.6 (14.0 – 47.0)	31	12.3 (6.0 – 32.0)	31	15.2 (5.0 – 32.0)	25	2.6 (1.0 – 8.0)
Large metropolitan	31	3.3 (1.0 – 5.0)	31	25.6 (13.0 – 51.0)	30	10.8 (3.0 – 29.0)	30	14.6 (5.0 – 32.0)	19	3.4 (1.0 – 14.0)
Medium metropolitan	16	2.4 (1.0 – 5.0)	16	16.9 (7.0 – 27.0)	13	8.2 (4.0 – 17.0)	15	11.1 (4.0 – 26.0)	11	1.4 (1.0 – 3.0)
Large regional	23	3.0 (2.0 – 6.0)	23	17.4 (9.0 – 35.0)	23	8.0 (4.0 – 14.0)	22	9.1 (2.0 – 24.0)	21	1.7 (1.0 – 4.0)
Small/medium regional	10	2.6 (1.0 – 5.0)	10	9.2 (3.0 – 18.0)	9	6.6 (4.0 – 9.0)	7	5.7 (3.0 – 10.0)	8	1.4 (1.0 – 2.0)
Private	11	1.7 (1.0 – 2.0)	11	15.4 (6.0 – 25.0)	7	4.4 (1.0 – 11.0)	5	4.4 (2.0 – 8.0)	0	
Specialist	6	4.0 (2.0 – 5.0)	6	31.3 (12.0 – 63.0)	6	13.8 (8.0 – 26.0)	5	13.8 (8.0 – 20.0)	6	1.8 (1.0 – 3.0)
Aotearoa										
Metropolitan	7	4.4 (3.0 – 6.0)	7	35.0 (14.0 – 57.0)	7	9.4 (4.0 – 17.0)	7	12.4 (5.0 – 36.0)	6	2.0 (1.0 – 3.0)
Regional	12	2.9 (2.0 – 7.0)	12	16.6 (8.0 – 47.0)	10	7.3 (2.0 – 14.0)	8	5.3 (2.0 – 10.0)	6	1.3 (1.0 – 2.0)

The percentage change in the average number of beds or chairs available within specific treatment spaces between 2016 and 2021, is displayed by country in Figure 1 and by region in Table 4. Accredited EDs in Aotearoa have reported an overall percentage decrease in the average number of beds or chairs available across all reported treatment spaces compared with what was reported in the 2016 Census. The Australian EDs, on the other hand, reported an overall increase across all types of treatment spaces (Figure 1 and Table 4). Both Australia and Aotearoa saw a percentage increase in the average number of emergency/acute and ED mental health assessment beds/ chairs.

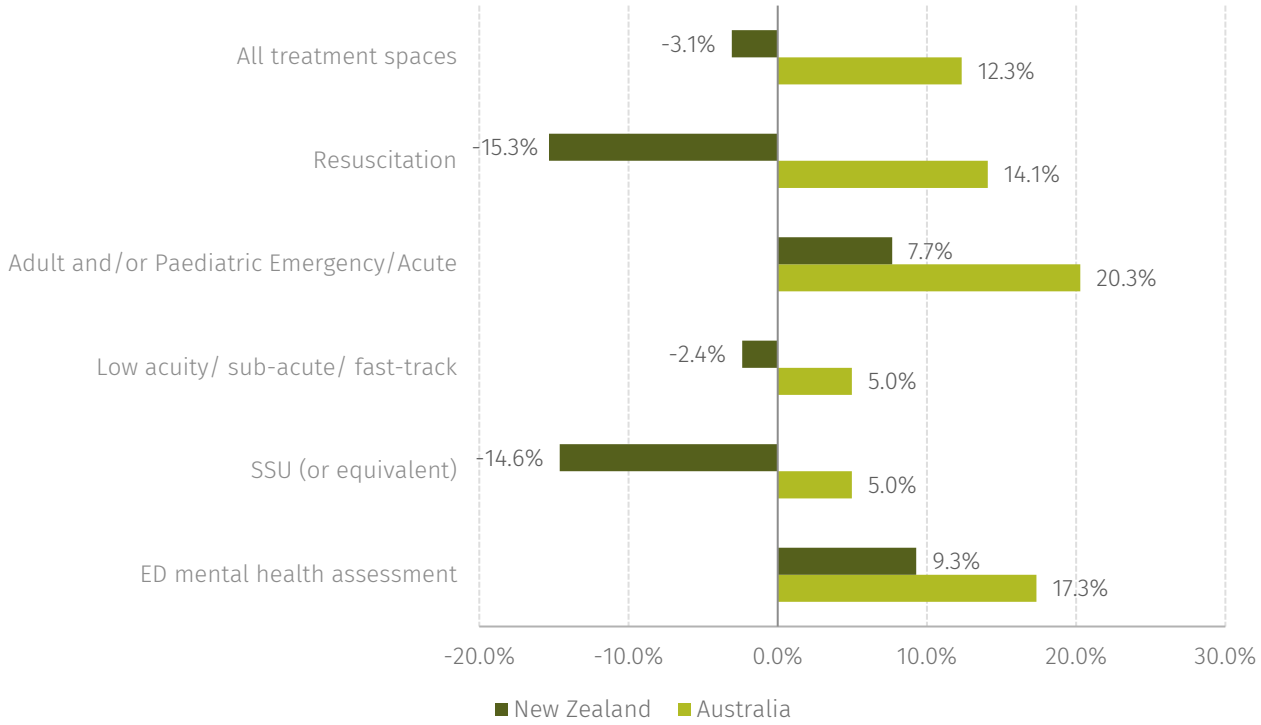

Figure 1 Percentage change in the average number of beds or chairs available within specific treatment spaces between 2016 and 2021, by country.

The highest percentage increase in average beds/ chairs available across treatment spaces was observed in the Australian Capital Territory (ACT) for ED mental health assessment treatment spaces, which have more than tripled between 2016 and 2021. The reverse was seen in Tasmania (TAS), which had the largest decrease in average beds/ chairs available for their ED mental health assessment treatment spaces, down 35.0%.

Table 4 Percentage change in the average number of beds or chairs available within specific treatment spaces from 2016 to 2021, by region.

Region	Resuscitation %	Adult and/or Paediatric Emergency/ Acute %	Low acuity/sub-acute/fast-track %	SSU (or equivalent) %	ED mental health assessment %	Average across treatment spaces %
Australia	14.1%	20.3%	5.0%	5.0%	17.3%	12.3%
NSW	22.4%	15.1%	4.3%	-4.2%	24.6%	12.4%
VIC	6.5%	15.1%	13.7%	11.6%	7.7%	10.9%
QLD	17.8%	23.9%	9.4%	-4.4%	-9.6%	7.4%
WA	-4.7%	30.0%	-17.8%	19.6%	96.4%	24.7%
SA	64.4%	64.4%	23.7%	35.8%	8.2%	39.3%
TAS	0.0%	6.5%	8.0%	-7.0%	-35.0%	-5.5%
ACT	40.0%	31.8%	9.5%	60.9%	260.0%	80.4%
NT	-8.0%	-19.6%	-18.9%	16.3%	33.3%	0.6%
Aotearoa	-15.3%	7.7%	-2.4%	-14.6%	9.3%	-3.1%
Total	10.3%	19.1%	4.0%	3.3%	19.4%	11.2%

Note: The largest increase and decrease are highlighted for each treatment space in the Australian regions.

The number of beds/ chairs and the change in the ratio of beds/chairs to patient attendances are presented by region in Table 5. Overall, Australian EDs had a lower number of attendances to beds or chairs (1219 attendances per one bed/ chair), compared with Aotearoa EDs (1409 attendances per one bed/ chair). In Australia, Western Australia (WA) had the highest ratio (1306 attendances per bed/ chair), consistent with 2016 Census findings. South Australia (SA) saw the greatest percentage decrease between 2016 and 2021, in the ratio of attendances per bed/ chair. Although the ACT reported a 45.3% increase in the

ratio of patient attendances per bed/ chair, the ratio remained one of the lowest across all regions in Australia.

Table 5 The ratio of ED beds/ chairs across all reported treatment spaces to total ED attendance, by region.

	2016		2021		% Change: Ratio of attendances per bed/ chair
	Number of beds/ chairs	Ratio of ED beds/ chairs: attendances	Number of beds/ chairs	Ratio of ED beds/ chairs: attendances	
Region	n		n		%
Australia	5075	1:1236	6097	1:1219	-1.4%
NSW	1524	1:1257	1801	1:1293	2.8%
VIC	1214	1:1176	1443	1:1084	-7.8%
QLD	1159	1:1257	1409	1:1287	2.4%
WA	553	1:1316	601	1:1306	-0.8%
SA	323	1:1285	440	1:1070	-16.7%
TAS	108	1:1215	132	1:1114	-8.3%
ACT	98	1:740	143	1:1063	43.6%
NT	96	1:1173	128	1:1086	-7.4%
Aotearoa	669	1:1268	798	1:1409	11.1%
Total	5744	1:1239	6895	1:1243	0.4%

Note: smallest and greatest ratios and largest percentage increase and decrease are highlighted for Australian EDs.

Table 6 presents the ratio of ED beds/ chairs across all ED treatment spaces to total ED attendances, by hospital peer group. Private EDs in Australia reported the smallest number of attendances per bed/ chair, at a ratio of 930 attendances per one bed/ chair, compared to the other peer groups. Regionally located EDs in Australia and Aotearoa reported the highest number of attendances per ED bed/ chair. Additionally, Regional EDs generally also saw the greatest increase in the number of attendances per bed/ chair compared with the 2016 Census. It is noteworthy that the number of beds/chairs in Medium metropolitan EDs decreased, from 651 (in the 2016 Census) to 597, an 11.1% increase in the number of attendances per ED bed/ chair.

Table 6 The ratio of ED beds/ chairs across all reported treatment spaces to total ED attendance, by hospital peer group.

	2016		2021		% Change Ratio of attendances per bed/ chair
	Number of beds/ chairs	Ratio of ED beds/ chairs: attendances	Number of beds/ chairs	Ratio of ED beds/ chairs: attendances	
Hospital peer group	n		n		
Australia					
Major	1970	1:1234	2049	1:1223	-0.9%
Large metropolitan	1584	1:1350	1720	1:1265	-6.3%
Medium metropolitan	651	1:1120	597	1:1245	11.1%
Large regional	853	1:1195	887	1:1216	1.7%
Small/medium regional	223	1:1401	228	1:1445	3.1%
Private	283	1:911	241	1:930	2.0%
Specialist	269	1:1307	375	1:1061	-18.8%
Aotearoa					
Metropolitan	407	1:1170	441	1:1105	-5.6%
Regional	362	1:1384	357	1:1586	14.6%

Note: The smallest and greatest ratios and largest increase and decrease are highlighted for Australia; greatest ratio and largest increase are highlighted for Aotearoa.

4.2.2 Infection Control Spaces

This section presents data on infection control spaces available at ACEM accredited EDs, including the number of EDs with negative pressure rooms available and the mean number of negative pressure rooms, as well as the average percentage of negative pressure rooms with an anteroom. All Aotearoa EDs and the majority (89.8%) of Australian EDs reported having at least one negative pressure room (Table 7). A smaller proportion (71.4%) of EDs in SA reported having a negative pressure room, however the state reported the highest mean number of negative pressure rooms (4.8) per ED.

Of EDs with negative pressure room(s), a higher proportion of Australian EDs, on average, reported they had anterooms, compared with EDs in Aotearoa. All negative pressure rooms in EDs in the ACT and Northern Territory (NT) had anterooms.

Table 7: Number and percentage of EDs that reported having negative pressure rooms, average number of negative pressure rooms, and average percentage of negative pressure rooms with anterooms, by region

	EDs with at least one negative pressure room		Number of negative pressure rooms			Negative pressure rooms with anterooms
Region	n	%	Total	mean	(range)	%*
Australia	115	89.8%	310	2.7	(1 – 14)	79.2%
NSW	38	90.5%	112	2.9	(1 – 9)	64.1%
VIC	26	86.7%	59	2.3	(1 – 14)	90.2%
QLD	26	89.7%	61	2.3	(1 – 8)	88.9%
WA	12	100.0%	36	3.0	(1 – 11)	83.5%
SA	5	71.4%	24	4.8	(2 – 8)	58.2%
TAS	3	100.0%	10	3.3	(2 – 6)	72.2%
ACT	2	100.0%	4	2.0	(1 – 3)	100.0%
NT	3	100.0%	4	1.3	(1 – 2)	100.0%
Aotearoa	19	100.0%	34	1.8	(1 – 3)	62.3%
Total	134	91.2%	344	2.6	(1 – 14)	76.8%

Note: Mean and range refer to the negative pressure rooms per ED. *refers to the average percentage of negative pressure rooms with an anteroom per ED.

In Australia, the highest percentage of Major EDs and Large metropolitan EDs (96.8%, respectively) reported having at least one negative pressure room. Of the EDs with a negative pressure room, a higher proportion of Large regional and Small/ medium regional EDs reported having anterooms (Table 8). In Aotearoa, Regional EDs reported a higher average percentage per ED of their negative pressure rooms having anterooms (69.4%) compared to Metropolitan EDs (50.0%).

Table 8: Number and percentage of EDs that reported having negative pressure rooms, average number of negative pressure rooms, and average percentage of negative pressure rooms with anterooms, by hospital peer group

	EDs with at least one negative pressure room		Number of negative pressure rooms			Negative pressure rooms with anterooms
Hospital peer group	n	%	Total	mean	(range)	%*
Australia						
Major	30	96.8%	123	4.1	(1 – 14)	74.5%
Large metropolitan	30	96.8%	78	2.6	(1 – 6)	77.1%
Medium metropolitan	12	75.0%	17	1.4	(1 – 5)	80.0%
Large regional	21	91.3%	46	2.2	(1 – 6)	80.6%
Small/medium regional	9	90.0%	12	1.3	(1 – 2)	100.0%
Private	8	72.7%	12	1.5	(1 – 3)	72.9%
Specialist	5	83.3%	22	4.4	(2 – 9)	84.0%
Aotearoa						
Metropolitan	7	100.0%	14	2.0	–	50.0%
Regional	12	100.0%	20	1.7	(1 – 3)	69.4%

Note: Mean and range refer to the negative pressure rooms per ED. *refers to the average percentage of negative pressure rooms with an anteroom per ED.

4.3 ED or Hospital Designated Staff and Services

4.3.1 Designated Research Position

EDs were asked to provide details of staff in designated research positions. The percentage of EDs that reported having an ACEM Director of Research and ED research coordinator, are presented by jurisdiction (Table 9) and hospital peer group (Table 10). Just over half of Australian EDs (55.5%) and Aotearoa EDs (52.6%) reported having a designated ACEM Director of Research.There were generally large percentages of EDs that reported having an ED research coordinator than the ACEM Director of Research across jurisdictions, except for the WA and the NT.

Table 9: Percentage of EDs reported having designated research position, by region

	ACEM Director of Research		ED Research Coordinator	
Region	n	%	n	%
Australia	71	55.5%	93	72.7%
NSW	22	52.4%	32	76.2%
VIC	17	56.7%	22	73.3%
QLD	16	55.2%	20	69.0%
WA	8	66.7%	8	66.7%
SA	3	42.9%	5	71.4%
TAS	1	33.3%	2	66.7%
ACT	1	50.0%	2	100.0%
NT	3	100.0%	2	66.7%
Aotearoa	10	52.6%	14	73.7%
Total	81	55.1%	107	72.8%

Private EDs in Australia (27.3%) and Regional EDs in Aotearoa (33.3%) were least likely to report having an ACEM Director of Research.

Table 10: Percentage of EDs with designated research position, by hospital peer group

	ACEM Director of Research		ED Research Coordinator	
Region	n	%	n	%
Australia				
Major	27	87.1%	26	83.9%
Large metropolitan	20	64.5%	25	80.6%
Medium metropolitan	5	31.3%	7	43.8%
Large regional	8	34.8%	17	73.9%
Small/medium regional	4	40.0%	6	60.0%
Private	3	27.3%	6	54.5%
Specialist	4	66.7%	6	100.0%
Aotearoa				
Metropolitan	6	85.7%	5	71.4%
Regional	4	33.3%	9	75.0%

4.3.2 Designated Staff for ED Quality and Safety

EDs were asked to provide details of their ED staff responsible for quality and safety (Table 11). Almost all ACEM-accredited EDs in Australia (94.5%), and all Aotearoa EDs, reported having a designated person responsible for ED quality and safety. Seven Australian EDs reported this role as being not applicable in their ED or had missing data.

Table 11: Number and proportion of EDs with designated staff for ED quality and safety, by region and hospital peer group

Region	Staff for ED quality and safety	
	n	%
Australia	121	94.5%
NSW	40	95.2%
VIC	26	86.7%
QLD	28	96.6%
WA	12	100.0%
SA	7	100.0%
TAS	3	100.0%
ACT	2	100.0%
NT	3	100.0%
Major	31	100.0%
Large metropolitan	29	93.5%
Medium metropolitan	15	93.8%
Large regional	21	91.3%
Small/medium regional	10	100.0%
Private	9	81.8%
Specialist	6	100.0%
Aotearoa	19	100.0%
Metropolitan	7	100.0%
Regional	12	100.0%
Total	136	95.2%

4.3.3 Designated Disaster and/or Pandemic Coordinator

EDs were asked to provide details of their ED or hospital staff member designated as their disaster and/or pandemic coordinator, with 136 (92.5%) of 147 accredited EDs doing so. The number and percentage of EDs that reported having a designated disaster/ pandemic coordinator are presented by region and hospital peer group in Table 12. All of the EDs in SA, TAS, ACT and NT reported having a designated disaster/ pandemic coordinator, but a smaller percentage (86.2%, n= 25) of EDs in Queensland (QLD) reported having one. Across different hospital peer groups, a lower percentage of Private and Metropolitan EDs in Australia reported having this position. In Aotearoa, all but one Regional ED reported having a designated person for this role.

Table 12: Number and percentage of EDs with an ED or hospital designated disaster and/or pandemic coordinator, by region and hospital peer group

Region	Number of EDs with designated disaster/pandemic coordinator	
	n	%
Australia	118	92.2%
NSW	40	95.2%
VIC	27	90.0%
QLD	25	86.2%
WA	11	91.7%
SA	7	100.0%
TAS	3	100.0%
ACT	2	100.0%
NT	3	100.0%
Major	31	100.0%
Large metropolitan	27	87.1%
Medium metropolitan	14	87.5%
Large regional	22	95.7%
Small/medium regional	9	90.0%
Private	9	81.8%
Specialist	6	100.0%
Aotearoa	18	94.7%
Metropolitan	7	100.0%
Regional	11	91.7%
Total	136	92.5%

4.3.4 Sustainability Practices

The sustainability practices exercised by ACEM-accredited EDs are presented by region in Table 13, and by hospital peer group in Table 14. Sites were asked if they had an Environmental Sustainability Officer or equivalent role in their hospital or ED. Over three quarters (78.9%) of Aotearoa EDs in comparison to only half of Australian EDs reported having this role in their hospital or ED. Less than half (40.9%) of Australian sites reported having a formal Environmental Sustainability Plan in their ED or hospital, compared with 63.2% of Aotearoa sites. The percentage of sites that reported having one varied across Australian regions, ranging from 0% in TAS to two-thirds in the NT. Sites were also asked if any efforts had been made to quantify the carbon dioxide (CO_2) emissions generated by their ED or hospital. Less than one third of Australian EDs responded 'yes', whereas 63.2% of Aotearoa EDs reported that efforts had been made to quantify CO_2 emissions. Overall, a higher percentage of Aotearoa EDs reported the availability of various sustainability practices than Australian EDs.

Table 13: Percentage of EDs that reported having sustainability practices in place, by region

	n	Environmental Sustainability Officer	Formal Environmental Sustainability Plan	Quantified CO_2 emissions
Australia	127	50.4%	40.9%	30.7%
NSW	41	31.7%	26.8%	22.0%
VIC	30	60.0%	50.0%	30.0%
QLD	29	55.2%	44.8%	20.7%
WA	12	75.0%	58.3%	58.3%
SA	7	42.9%	42.9%	57.1%
TAS	3	33.3%	0.0%	33.3%
ACT	2	50.0%	50.0%	50.0%
NT	3	100.0%	66.7%	66.7%
Aotearoa	19	78.9%	63.2%	63.2%
Total	146	54.1%	43.8%	34.9%

Note: Data missing for one ED.

In Australia, comparable percentages of EDs across hospital peer groups reported having an Environmental Sustainability Officer or equivalent in the hospital or ED, ranging between 45.2% in Large metropolitan EDs to 54.8% in Major EDs (Table 14). A higher percentage of Private EDs reported having a formal Environmental Sustainability Plan in place and efforts to quantify CO_2 emissions, compared with EDs of other hospital peer groups. Interestingly, a greater percentage of Regional EDs than Metropolitan EDs in Aotearoa reported having an Environmental Sustainability Officer or a formal Environmental Sustainability Plan in the hospital or ED. However, an opposing trend was seen concerning their ED's efforts to quantify CO_2 emissions.

Table 14: Percentage of EDs that reported having sustainability practices in place, by hospital peer group

	n	Environmental Sustainability Officer	Formal Environmental Sustainability Plan	Quantified CO_2 emissions
Australia				
Major	31	54.8%	51.6%	35.5%
Large metropolitan	31	45.2%	38.7%	35.5%
Medium metropolitan	15	53.3%	40.0%	13.3%
Large regional	23	52.2%	26.1%	17.4%
Small/medium regional	10	50.0%	40.0%	30.0%
Private	11	45.5%	54.5%	54.5%
Specialist	6	50.0%	33.3%	33.3%
Aotearoa				
Metropolitan	7	57.1%	42.9%	71.4%
Regional	12	91.7%	75.0%	58.3%
Total	146	54.1%	43.8%	34.9%

Note: Data missing for one ED.

4.3.5 Other Hospital Services

This section presents data on other hospital services, focusing on the availability of an on-site Cardiac Catheter Laboratory for urgent Percutaneous Coronary Intervention (PCI) for ST-Elevation Myocardial Infarction (STEMI), and if the hospital was designated as a Major Trauma Service.

With respect to Cardiac Catheter Laboratories providing urgent PCI for STEMI, approximately half of Australian (53.1%) and Aotearoa EDs (47.4%) had this available on-site.

Just under one-quarter of Australian EDs (24.2%) and almost half of Aotearoa EDs (47.4%) were designated as a Major Trauma Service (Table 15). Only 10.0% of Victoria (VIC), 16.7% of WA and 17.2% of QLD EDs were designated as a Major Trauma Service.

Table 15 The percentage of hospitals with an on-site Cardiac Catheter Laboratory, the percentage designated as a Major Trauma Service, the percentage that reported major trauma cases and the average number of major trauma cases treated with an injury severity score (ISS) of greater than 12, by region.

	On-site Cardiac Catheter Lab for urgent PCI for STEMI	Designated as Major Trauma Service	Major trauma cases treated with an ISS>12*
Region	%	%	mean (range)
Australia	53.1%	24.2%	224.3 (1 – 1375)
NSW	57.1%	31.0%	154.3 (4 – 639)
VIC	60.0%	10.0%	404.6 (10 – 1375)
QLD	41.4%	17.2%	245.1 (1 – 500)
WA	50.0%	16.7%	280.6 (16 – 1068)
SA	57.1%	42.9%	176.4 (10 – 523)
TAS	66.7%	66.7%	257
ACT	50.0%	50.0%	393
NT	33.3%	66.7%	139
Aotearoa	47.4%	47.4%	171.9 (37 – 400)
Total	52.4%	27.2%	213.1 (1 – 1375)

Note: ISS = injury severity score, *major trauma cases presenting to EDs during the period 1 July 2020 to 30 June 2021. Where no mean or range is provided, $n \leq 1$. Two Australian EDs that were a designated Major Trauma Service were unable to provide the number of trauma cases.

In Australia, on-site Cardiac Catheter Laboratories for urgent PCI for STEMI were available in all Major and a large percentage of Private (90.9%) hospitals, compared with the other Australian hospital peer groupings (Table 16). Under half of Australian EDs classified as Large metropolitan and Large regional reported having an on-site Cardiac Catheter Laboratory, while they were available in 85.7% of Metropolitan and one quarter (25.0%) of Regional hospitals in Aotearoa.

In Australia, all Specialist, 61.3% of Major and 26.1% of Large regional EDs were designated as a Major Trauma Service. In Aotearoa, 71.4% of Metropolitan and 33.3% of Regional EDs were designated as a Major Trauma Service.

Major EDs in Australia and Metropolitan EDs in Aotearoa treated the highest mean number of major trauma cases (with an injury severity score (ISS) of more than 12) in the previous financial year, at 397 and 281 respectively (Table 16).

Table 16 Percentage of hospitals with an on-site Cardiac Catheter Laboratory providing urgent PCI for STEMI, the percentage with a Major Trauma Service and the average number of major trauma cases treated with an injury severity score greater than 12*, by hospital peer group.

Hospital peer group	On-site Cardiac Catheter Lab for urgent PCI for STEMI %	Designated as Major Trauma Service %	Major trauma cases treated with an ISS>12* mean (range)
Australia			
Major	100.0%	61.3%	396.8 (26 – 1375)
Large metropolitan	45.2%	0.0%	64.7 (10 – 140)
Medium metropolitan	0.0%	0.0%	15
Large regional	47.8%	26.1%	75.1 (48 – 101)
Small/ medium regional	10.0%	0.0%	7
Private	90.9%	0.0%	1
Specialist	16.7%	100.0%	84.3 (40 – 118)
Aotearoa			
Metropolitan	85.7%	71.4%	281.4 (70 – 400)
Regional	25.0%	33.3%	111.0 (37 – 400)

Note: ISS = injury severity score, *major trauma cases presenting to EDs during the period 1 July 2020 to 30 June 2021. Where no mean or range is provided, $n \leq 1$. Two Australian EDs that were a designated Major Trauma Service were unable to provide the number of trauma cases.

4.4 Staff Training

This section presents data on the availability of cultural competency and discrimination, bullying, sexual harassment and harassment (DBSH) training in Australian and Aotearoa accredited EDs.

4.4.1 Cultural Competency Training

Cultural competency training was available for staff in almost all (98.6%, 145/147) EDs. This included 100% of Aotearoa EDs and 98.4% of Australian EDs. The two sites (Large metropolitan and Private EDs, respectively) that reported cultural competency training was not available, specified that ACEM cultural competency modules were available for FACEMs, but the training was not available or mandatory for other ED staff.

4.4.2 Discrimination, Bullying, Sexual Harassment and Harassment Training

The DBSH training was available to staff in almost all Aotearoa EDs (94.4%, 17/18, one ED did not respond) and Australian EDs (98.4%, 126/128). EDs that did not have DBSH training available included one Specialist ED in Australia and two Regional EDs, one in Australia and another in Aotearoa. The two Australian EDs that indicated that DBSH training was not available to staff in their ED reported online modules or assistance programs were available but mainly covered bullying and violence, not all aspects of DBSH. Whereas the Aotearoa ED that reported not providing DBSH training to all staff reported that the training was only catered for those who have experienced DBSH.

4.5 Ultrasound Teaching

This section presents findings relating to ultrasound teaching in EDs, including whether EDs have a formal ultrasound training program, and the ultrasound scans FACEM trainees were expected to gain proficiency in. This section also reports the number of FACEMs, paediatric emergency medicine (PEM) specialists, FACEM trainees and specialist internaitonal medical graduates (SIMGs) in accredited EDs who have an ultrasound qualification and who have met ACEM's criteria as outlined in P733 Credentialing for Emergency Medicine Ultrasonography (2021). Further information on the number of ED ultrasound machines available, whether there is a clinical lead for ultrasound, and on the types of ED staff who use the ultrasound machines is also provided. A comparison with the 2019 Census findings is included for several data items that were asked previously to assess any changes between 2019 and 2021.

4.5.1 Number of Ultrasound Machines

The average number of ultrasound machines that ACEM-accredited EDs have in operation is presented by region (Table 17) and hospital peer group (Table 18). As shown in Table 17 below, Australian EDs (3.0) reported a slightly higher average number of ultrasound machines in operation than Aotearoa EDs (2.5).

Although the average number of ultrasound machines currently in operation in EDs increased in both Australia and Aotearoa, there was a greater percentage increase since 2019 seen in Aotearoa (31.6%). In Australia, WA EDs saw the largest percentage increase (30.4%). In contrast, TAS was the only jurisdiction that saw a decrease in the mean number of ultrasound machines in operation at their accredited EDs, although the number of reporting EDs varied between the two time points.

Table 17: Average number of ultrasound machines currently in operation in accredited EDs, 2021 vs. 2019, by region.

	2021			2019			Change in mean
Region	n	mean	(range)	n	mean	(range)	%
Australia	128	3.0	(1.0 - 12.0)	123	2.6	(1.0 - 14.0)	+15.4%
NSW	42	3.1	(1.0 - 11.0)	38	3.0	(1.0 - 14.0)	+3.3%
VIC	30	2.5	(1.0 - 6.0)	29	2.0	(1.0 - 5.0)	+25.0%
QLD	29	3.0	(1.0 - 9.0)	29	2.6	(1.0 - 6.0)	+15.4%
WA	12	3.0	(1.0 - 5.0)	12	2.3	(1.0 - 5.0)	+30.4%
SA	7	4.3	(1.0 - 12.0)	8	3.4	(1.0 - 13.0)	+26.5%
TAS	3	2.7	(2.0 - 4.0)	2	3.0	(2.0 - 4.0)	-10.0%
ACT	2	4.0	(3.0 - 5.0)	2	4.0		0.0%
NT	3	2.3	(1.0 - 4.0)	3	1.7	(1.0 - 2.0)	+35.3%
Aotearoa	18	2.5	(1.0 - 7.0)	18	1.9	(1.0 - 4.0)	+31.6%
Total	147	2.9	(1.0 - 12.0)	141	2.5	(1.0 - 14.0)	+16.0%

Note: where no range is provided, there is no variation from the mean.

Australian EDs classified as Major, reported the highest mean number of ultrasound machines (4.9) compared with other hospital peer groups (Table 18), and they also saw the largest increase in operational ultrasound machines between 2019 and 2021. Metropolitan EDs in Aotearoa saw over a 50% increase in the mean number of ultrasound machines in operation between 2019 and 2021, with the mean number of ultrasound machines double that in the Regional EDs (3.7 vs. 1.8).

Table 18: Average number of ultrasound machines currently in operation in accredited EDs, 2021 vs. 2019, by hospital peer group.

	2021			2019			Change in mean
Hospital peer group	n	mean	(range)	n	mean	(range)	%
Australia							
Major	31	4.9	(2.0 - 12.0)	31	3.9	(1.0 - 13.0)	+25.6%
Large metropolitan	31	3.0	(1.0 - 5.0)	29	2.7	(1.0 - 9.0)	+11.1%
Medium metropolitan	16	2.2	(1.0 - 4.0)	16	1.8	(1.0 - 3.0)	+22.2%
Large regional	23	2.3	(1.0 - 4.0)	21	2.5	(1.0 - 14.0)	-8.0%
Small/medium regional	10	1.6	(1.0 - 4.0)	8	1.3	(1.0 - 2.0)	+23.1%
Private	11	1.6	(1.0 - 3.0)	11	1.4	(1.0 - 2.0)	+14.3%
Specialist	7	2.5	(2.0 - 3.0)	7	2.1	(2.0 - 3.0)	+19.0%
Aotearoa							
Metropolitan	7	3.7	(1.0 - 7.0)	7	2.4	(1.0 - 4.0)	+54.2%
Regional	12	1.8	(1.0 - 6.0)	11	1.5	(1.0 - 3.0)	+20.0%
Total	147	2.9	(1.0 - 12.0)	141	2.5	(1.0 - 14.0)	+16.0%

4.5.2 Ultrasound Qualifications and Credentialing

The mean number of FACEMs, PEM specialists, FACEM trainees and SIMGs who met the ACEM credentialing criteria (via either onsite credentialing or external qualifications) for EFAST, AAA, BELS/FELS, procedural guidance, and lung, are presented by region in Table 19 and by hospital peer group in Table 21. Aotearoa EDs generally reported a higher mean number of those who met the ACEM credentialing criteria for each modality compared with Australian EDs. Of those who were credentialed, less than half of Australian (48%) and Aotearoa (42%) EDs reported keeping a current list of FACEMs, PEM specialists, FACEM trainees and SIMGs that are credentialled for each modality.

Table 19: Mean number of FACEMs, PEM Specialists, FACEM trainees and SIMGs who met the ACEM guideline for credentialing, by region.

	EFAST		AAA		BELS/FELS		Procedural guidance		Lung	
Region	n	mean (range)	n	mean (range)	n	mean (range)	n	mean (range)	n	mean (range)
Australia	113	8.9 (1.0 – 70.0)	109	7.1 (1.0 – 36.0)	104	6.1 (1.0 – 32.0)	90	9.4 (1.0 – 66.0)	100	5.1 (1.0 – 25.0)
NSW	38	8.3 (1.0 – 32.0)	36	7.7 (1.0 – 29.0)	36	7.7 (1.0 – 32.0)	31	6.8 (1.0 – 25.0)	31	5.6 (1.0 – 25.0)
VIC	27	14.8 (1.0 – 70.0)	26	8.9 (1.0 – 36.0)	24	6.6 (1.0 – 20.0)	23	12.7 (1.0 – 40.0)	23	5.8 (1.0 – 20.0)
QLD	24	5.9 (1.0 – 21.0)	23	5.7 (1.0 – 21.0)	24	4.5 (1.0 – 21.0)	19	9.9 (1.0 – 56.0)	19	4.6 (1.0 – 18.0)
WA	12	8.7 (1.0 – 32.0)	12	7.5 (1.0 – 20.0)	11	5.3 (1.0 – 15.0)	10	5.8 (1.0 – 17.0)	10	3.7 (1.0 – 10.0)
SA	6	4.7 (1.0 – 12.0)	6	4.3 (1.0 – 12.0)	5	3.8 (1.0 – 10.0)	4	20.5 (3.0 – 66.0)	5	4.0 (1.0 – 9.0)
TAS	1	5.0	1	5.0	1	2.0	0	-	1	2.0
ACT	2	2.5 (2.0 – 3.0)	2	2.5 (2.0 – 3.0)	1	3.0	1	3.0	1	3.0
NT	3	4.0 (2.0 – 5.0)	3	2.3 (1.0 – 3.0)	2	3.0	2	5.0	2	3.0
Aotearoa	17	9.7 (1.0 – 25.0)	17	9.8 (1.0 – 25.0)	16	6.8 (1.0 – 12.0)	14	10.1 (1.0 – 30.0)	15	7.0 (1.0 – 14.0)
Total	130	9.0 (1.0 – 70.0)	126	7.4 (1.0 – 36.0)	120	6.2 (1.0 – 32.0)	104	9.5 (1.0 – 66.0)		5.3 (1.0 – 25.0)

Note: where no range is provided, there is no variation from the mean; the number of reporting EDs varies across different modalities.

Similarly, Aotearoa EDs reported a higher mean number of those with a formal ultrasound qualification (6.1) compared with Australian EDs (4.9) (Table 20). Compared to 2019, the mean number of EDs that reported having FACEMs, PEM specialists, FACEM trainees and SIMGs with formal ultrasound qualifications (e.g., CCPU, DDU, RDMS) increased in 2021 across both Australia and Aotearoa. QLD, ACT and NT were the three jurisdictions that saw a decrease in the mean number of staff with a formal ultrasound qualification.

Table 20: Mean number of FACEMs, PEM Specialists, FACEM trainees and SIMGs who have a formal ultrasound qualification, by region, 2021 vs. 2019.

	2021			2019			Change in mean
Region	n	mean	(range)	n	mean	(range)	%
Australia	105	4.9	(1.0 – 30.0)	102	4.6	(1.0 – 44.0)	+6.5%
NSW	36	6.4	(1.0 – 30.0)	31	5.5	(1.0 – 20.0)	+16.4%
VIC	22	4.1	(1.0 – 12.0)	22	3	(1.0 – 7.0)	+36.7%
QLD	24	3.5	(1.0 – 18.0)	23	5.5	(1.0 – 44.0)	-36.4%
WA	11	6.5	(1.0 – 17.0)	12	5.5	(1.0 – 18.0)	+18.2%
SA	5	5.0	(2.0 – 12.0)	7	3.6	(1.0 – 10.0)	+38.9%
TAS	2	3.5	(2.0 – 5.0)	2	3		+16.7%
ACT	2	2.0		2	2.5	(1.0 – 4.0)	-20.0%
NT	3	1.7	(1.0 – 2.0)	3	3	(2.0 – 4.0)	-43.3%
Aotearoa	18	6.1	(1.0 – 15.0)	16	5.6	(1.0 – 11.0)	+8.9%
Total	123	5.1	(1.0 – 30.0)	118	4.8	(1.0 – 44.0)	+6.3%

Note: where no range is provided, there is no variation from the mean.

Major EDs in Australia reported the highest average number of FACEMs, PEM specialists, FACEM trainees and SIMGs who met the ACEM credentialing criteria for EFAST, AAA, BELS/FELS, procedural guidance, and lung (Table 21). On the contrary, Specialist EDs reported the lowest average number of their staff who met the credentialing criteria for each of the modalities, except for procedural guidance. For Aotearoa, Metropolitan EDs had a consistently higher mean number of FACEMs, PEM specialists, FACEM trainees and SIMGs who met the ACEM credentialing criteria for each modality compared to Regional EDs.

Table 21: Mean number of FACEMs, PEM Specialists, FACEM trainees and SIMGs who met the ACEM guidelines for credentialing, by hospital peer group.

	EFAST		AAA		BELS/FELS		Procedural guidance		Lung	
Hospital peer group	n	mean (range)	n	mean (range)	n	mean (range)	n	mean (range)	n	mean (range)
Australia										
Major	31	15.5 (1.0 - 70.0)	30	11.8 (1.0 - 36.0)	29	9.6 (1.0 - 30.0)	24	18.6 (1.0 - 66.0)	26	6.5 (1.0 - 25.0)
Large metropolitan	28	7.3 (1.0 - 18.0)	28	6.6 (1.0 - 18.0)	27	5.6 (1.0 - 17.0)	22	7.6 (1.0 - 29.0)	27	5.3 (1.0 - 17.0)
Medium metropolitan	14	8.2 (1.0 - 53.0)	14	4.4 (1.0 - 18.0)	14	3.9 (1.0 - 18.0)	10	4.9 (1.0 - 21.0)	12	4.0 (1.0 - 18.0)
Large regional	18	4.6 (1.0 - 12.0)	18	3.7 (1.0 - 12.0)	17	5.1 (1.0 - 32.0)	14	4.7 (1.0 - 12.0)	14	3.4 (1.0 - 12.0)
Small/ medium regional	7	5.6 (3.0 - 10.0)	7	5.3 (3.0 - 10.0)	7	3.4 (2.0 - 5.0)	7	4.9 (2.0 - 10.0)	7	4.4 (2.0 - 10.0)
Private	9	8.1 (1.0 - 20.0)	9	7.0 (1.0 - 20.0)	6	4.2 (2.0 - 9.0)	8	6.1 (1.0 - 20.0)	9	6.1 (1.0 - 20.0)
Specialist	6	3.2 (1.0 - 5.0)	3	1.7 (1.0 - 3.0)	4	3.3 (2.0 - 5.0)	5	7.0 (3.0 - 20.0)	5	2.6 (1.0 - 3.0)
Aotearoa										
Metropolitan	7	13.6 (4.0 - 25.0)	7	13.7 (4.0 - 25.0)	7	7.7 (4.0 - 10.0)	6	14.3 (4.0 - 30.0)	7	7.4 (4.0 - 10.0)
Regional	10	7.0 (1.0 - 14.0)	10	7.0 (1.0 - 14.0)	9	6.1 (1.0 - 12.0)	8	7.0 (1.0 - 14.0)	8	6.6 (1.0 - 14.0)
Total	130	9.0 (1.0 - 70.0)	126	7.4 (1.0 - 36.0)	120	6.2 (1.0 - 32.0)	104	9.5 (1.0 - 66.0)	115	5.3 (1.0 - 25.0)

A similar trend can be observed across hospital peer groups among Australian EDs in Table 22 for FACEMs, PEM specialists, FACEM trainees and SIMGs with a formal ultrasound qualification, where Major EDs reported the highest average number, whilst Private EDs had the lowest average number of those with formal ultrasound qualifications. Metropolitan EDs (8.0) also had a higher average number of those with a formal ultrasound qualification compared with Regional EDs (4.9) in Aotearoa. The hospital peer groups that observed a decline in the percentage of staff with ultrasound qualifications since the 2019 Annual Site Census were Large (-11.5%) and Small/medium (-25.0%) regional EDs in Australia. Large metropolitan (+34.1%), Specialist (+29.4%) and Private (+23.8%) EDs saw a relatively large increase than other hospital peer groups in Australia, whereas Regional EDs saw a larger increase than Metropolitan EDs in Aotearoa (+25.6% vs.+1.3%).

Table 22: Mean number of FACEMs, PEM Specialists, FACEM trainees and SIMGs who have a formal ultrasound qualification, by hospital peer group, 2021 vs. 2019.

	2021			2019			Change in mean
Hospital peer group	n	mean	(range)	n	mean	(range)	%
Australia							
Major	28	8.4	(1.0 - 30.0)	30	8.3	(1.0 - 44.0)	+1.2%
Large metropolitan	26	5.5	(1.0 - 17.0)	24	4.1	(1.0 - 10.0)	+34.1%
Medium metropolitan	13	3.8	(1.0 - 18.0)	12	3.3	(1.0 - 11.0)	+15.2%
Large regional	18	2.3	(1.0 - 5.0)	16	2.6	(1.0 - 6.0)	-11.5%
Small/medium regional	7	2.4	(1.0 - 4.0)	5	3.2	(2.0 - 4.0)	-25.0%
Private	7	2.6	(2.0 - 4.0)	8	2.1	(1.0 - 6.0)	+23.8%
Specialist	6	2.2	(1.0 - 5.0)	7	1.7	(1.0 - 4.0)	+29.4%
Aotearoa							
Metropolitan	7	8.0	(3.0 - 15.0)	7	7.9	(1.0 - 11.0)	+1.3%
Regional	11	4.9	(1.0 - 12.0)	9	3.9	(1.0 - 8.0)	+25.6%
Total	123	5.1	(1.0 - 30.0)	118	4.8	(1.0 - 44.0)	+6.3%

4.5.3 Clinical Lead for Ultrasound

This section presents the percentage of EDs that reported having a clinical lead for ultrasound (e.g. Director of Emergency Ultrasound or equivalent) and the mean number of hours per week clinical support time that were allocated for this role, by region (Table 23) and hospital peer group (Table 24). Table 23 shows a higher percentage of Aotearoa EDs reporting having a clinical lead for ultrasound (94.7%) compared with Australian EDs (70.3%). Both Australia and Aotearoa saw an increase in the percentage of EDs reporting having a clinical lead for ultrasound between 2019 and 2021. The only region that saw a decrease was QLD (-6.9%); whereas the percentage remains unchanged for EDs in WA and ACT. Australian EDs and Aotearoa EDs reported a similar average number of clinical support hours allocated per week (6.8 and 6.9, respectively) for this role.

Table 23: Number and percentage of EDs reporting having a clinical lead for ultrasound (2021 vs. 2019) and the mean number of hours per week of clinical support time allocated for the role, by region.

	Clinical lead for ultrasound				Change in percentage	Hours of clinical support time per week for role		
	2021		2019					
Region	n	%	n	%	%	n	mean	(range)
Australia	90	70.3%	75	60.0%	+10.3%	68	6.8	(1.0 – 20.0)
NSW	34	81.0%	25	62.5%	+18.5%	25	6.7	(2.0 - 20.0)
VIC	20	66.7%	19	65.5%	+1.2%	16	6.3	(2.0 - 20.0)
QLD	16	55.2%	18	62.1%	-6.9%	12	5.0	(1.0 - 10.0)
WA	9	75.0%	9	75.0%	0.0%	6	12.7	(5.0 - 20.0)
SA	5	71.4%	2	25.0%	+46.4%	4	6.1	(4.0 - 10.0)
TAS	3	100.0%	1	50.0%	+50.0%	2	8.8	(8.0 - 9.5)
ACT	1	50.0%	1	50.0%	0.0%	1	2.0	
NT	2	66.7%	0	0.0%	+66.7%	2	6.0	
Aotearoa	18	94.7%	13	72.2%	+22.5%	9	6.9	(2.0 – 17.5)
Total	108	73.5%	88	61.5%	+12.0%	77	6.8	(1.0 - 20.0)

Note: where no range is provided, there is no variation from the mean. Clinical support time includes scanning patients but not performing their 'normal' emergency physician role.

All Metropolitan EDs in Aotearoa reported having a clinical lead for ultrasound, with an average of 9.3 clinical support hours allocated per week for this role. For Australia, while the highest percentage of EDs reporting a clinical lead for ultrasound was seen for EDs classified as Major (100%), Specialist EDs reported the highest average clinical support hours allocated per week for this role, with an average of 8 hours per week (Table 24). Large Regional EDs in Australia and Regional EDs in Aotearoa saw the greatest increase in the percentage of EDs that reported having a clinical lead for ultrasound in 2021 compared with 2019.

Table 24: Percentage of EDs reporting having a clinical lead for ultrasound (2021 vs. 2019), and the mean number of hours per week of clinical support time allocated for the role, by hospital peer group.

	Clinical lead for ultrasound				Change in percentage	Hours of clinical support time per week for role		
	2021		2019					
Hospital peer group	n	%	n	%	%	n	mean	(range)
Australia								
Major	31	100.0%	27	87.1%	+12.9%	27	7.5	(1.0 - 20.0)
Large metropolitan	20	64.5%	18	62.1%	+2.4%	18	7.2	(2.5 - 10.0)
Medium metropolitan	11	68.8%	10	62.5%	+6.3%	10	5.3	(2.5 - 10.0)
Large regional	16	69.6%	7	31.8%	+37.8%	7	5.6	(2.0 - 13.0)
Small/medium regional	6	60.0%	6	66.7%	-6.7%	4	4.5	(2.0 – 6.0)
Private	1	9.1%	3	27.3%	-18.2%	1	8.0	
Specialist	5	83.3%	4	57.1%	+26.2%	3	8.0	(2.0 - 20.0)
Aotearoa								
Metropolitan	11	100.0%	7	100.0%	0.0%	5	9.3	(4.0 – 17.5)
Regional	18	91.7%	6	54.5%	+37.2%	4	4.0	(3.0 - 5.0)
Total	108	73.5%	88	61.5%	+12.0%	77	6.8	(1.0 - 20.0)

Note: where range is provided, there is no variation from the mean. Clinical support time includes scanning patients but not performing their 'normal' emergency physician role.

4.5.4 Ultrasound Training

Data on whether accredited EDs reported having a formal ultrasound training program and the scans FACEM trainees were expected to gain proficiency in are presented by region (in Table 25 and Table 26) and by hospital peer group (in Table 27 and Table 28).

Over half (57.9%) of Aotearoa EDs reported having a formal ultrasound training program and the remainder provided informal training only (Table 25). While less than half of EDs in Australia (46.1%) reported having a formal ultrasound training program, a slightly larger percentage (48%) reported having only informal teaching available, and 6% of EDs did not provide any ultrasound training. Compared to the 2019 Annual Site Census, the percentage of EDs that reported having a formal ultrasound training program in 2021 has increased in Australia by 3.7% and in Aotearoa by 13.5%.

Table 25: Percentage of EDs that reported having a formal ultrasound training program in 2021 compared to 2019, by region.

		2021			2019		Change in those that reported 'Yes'
		Yes	Informal teaching only	No	Yes		
Region	n	%	%	%	n	%	%
Australia	128	46.1%	47.7%	6.3%	125	42.4%	+3.7%
NSW	42	50.0%	42.9%	7.1%	40	52.5%	-2.5%
VIC	30	46.7%	46.7%	6.7%	29	34.5%	+12.2%
QLD	29	48.3%	44.8%	6.9%	29	48.3%	0.0%
WA	12	58.3%	41.7%	0.0%	12	50.0%	+8.3%
SA	7	0.0%	100.0%	0.0%	8	12.5%	-12.5%
TAS	3	33.3%	33.3%	33.3%	2	0.0%	+33.3%
NT	3	66.7%	33.3%	0.0%	2	50.0%	+16.7%
ACT	2	0.0%	100.0%	0.0%	3	0.0%	0.0%
Aotearoa	19	57.9%	42.1%	0.0%	18	44.4%	+13.5%
Total	147	47.6%	47.0%	5.4%	143	42.7%	+4.9%

Of those with a formal ultrasound training program, all FACEM trainees in Aotearoa and most of the FACEM trainees in Australia were expected to gain proficiency in EFAST and AAA (94.9% and 83.1%, respectively) (Table 26). There were slightly lower expectations for FACEM trainees to gain proficiency in procedural guidance and life support.

Table 26: The scans FACEM trainees were expected to gain proficiency in, as a percentage by region.

Region	n	EFAST %	AAA %	Procedural guidance %	Life support %	Lung %	Biliary %	Renal %	DVT %	Early pregnancy %	Soft tissue %	Other %
Australia	59	94.9%	83.1%	83.1%	71.2%	52.5%	22.0%	22.0%	23.7%	20.3%	13.6%	11.9%
NSW	21	100%	90.5%	81.0%	85.7%	66.7%	38.1%	38.1%	38.1%	28.6%	19.1%	14.3%
VIC	14	85.7%	85.7%	92.9%	71.4%	50.0%	21.4%	21.4%	21.4%	7.1%	7.1%	14.3%
QLD	14	100%	85.7%	100%	64.3%	50.0%	14.3%	14.3%	21.4%	28.6%	21.4%	14.3%
WA	7	85.7%	85.7%	57.1%	57.1%	28.6%	0.0%	0.0%	0.0%	14.3%	0.0%	0.0%
SA	0											
TAS	1	100%	0.0%	100%	100%	100%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
NT	2	100%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
ACT	0											
Aotearoa	11	100%	100%	72.7%	63.6%	45.5%	18.2%	18.2%	0.0%	9.1%	0.0%	0.0%
Total	70	95.7%	85.7%	81.4%	70.0%	51.4%	21.4%	21.4%	20.0%	18.6%	11.4%	10.0%

Note: Only applicable for those EDs that have a formal ultrasound training program.

Table 27 shows that Major (77.4%), Specialist (66.7%) and Large metropolitan (51.6%) EDs in Australia were more likely to report having a formal ultrasound training program than EDs in other peer groups. Similarly, Metropolitan EDs (85.7%) in Aotearoa were more likely to have a formal ultrasound training program than Regional EDs (41.7%). Compared to the 2019 Census, the percentage of EDs that provided ultrasound training programs has increased in Regional EDs in both Australia and Aotearoa.

Table 27: Percentage of EDs that reported having an ultrasound training program in 2021 compared to 2019, by hospital peer group.

	2021				2019		
Hospital peer group	n	Yes %	Informal teaching only %	No %	n	Yes %	Change in those that reported 'Yes' %
Australia							
Major	31	77.4%	22.6%	0.0%	31	64.5%	+12.9%
Large metropolitan	31	51.6%	48.4%	0.0%	29	62.1%	-10.5%
Medium metropolitan	16	25.0%	62.5%	12.5%	16	37.5%	-12.5%
Large regional	23	30.4%	60.9%	8.7%	22	18.2%	+12.2%
Small/medium regional	10	30.0%	60.0%	10.0%	9	22.2%	+7.8%
Specialist	6	66.7%	33.3%	0.0%	11	9.1%	+57.6%
Private	11	9.1%	63.6%	27.3%	7	28.6%	-19.5%
Aotearoa							
Metropolitan	7	85.7%	14.3%	0.0%	7	85.7%	0.0%
Regional	12	41.7%	58.3%	0.0%	11	18.2%	+23.5%
Total	147	47.6%	47.0%	5.4%	143	42.7%	+4.9%

Across hospital peer groups for those with a formal ultrasound training program, a greater percentage of Major EDs, Metropolitan EDs and Large regional EDs expected FACEM trainees to become proficient in various types of ultrasound scans than Small/medium regional EDs in Australia (Table 28). In Aotearoa, a similar pattern was seen whereby a greater percentage of Metropolitan EDs than Regional EDs expected FACEM trainees to gain proficiency in most types of scans, except for EFAST and AAA.

Table 28: The scans FACEM trainees are expected to gain proficiency in, as a percentage by hospital peer group.

Hospital peer group	n	EFAST %	AAA %	Procedural guidance %	Life support %	Lung %	Biliary %	Renal %	DVT %	Early pregnancy %	Soft tissue %	Other %
Australia												
Major	24	95.8%	83.3%	79.2%	75.0%	45.8%	20.8%	16.7%	25.0%	8.3%	12.5%	12.5%
Large metropolitan	16	100%	100%	87.5%	75.0%	68.8%	25.0%	31.3%	37.5%	43.8%	18.8%	12.5%
Medium metropolitan	4	100%	100%	100%	100%	75.0%	25.0%	25.0%	0.0%	0.0%	0.0%	0.0%
Large regional	7	100%	85.7%	85.7%	71.4%	42.9%	28.6%	28.6%	14.3%	14.3%	14.3%	0.0%
Small/ medium regional	3	100%	66.7%	33.3%	0.0%	33.3%	0.0%	0.0%	0.0%	33.3%	33.3%	33.3%
Specialist	4	50.0%	0.0%	100%	50.0%	25.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Private	1	100%	100%	100%	100%	100%	100%	100%	100%	100%	0.0%	0.0%
Aotearoa												
Metropolitan	6	100%	100%	83.3%	83.3%	66.7%	16.7%	16.7%	0.0%	0.0%	0.0%	0.0%
Regional	5	100%	100%	60.0%	40.0	20.0%	20.0%	20.0%	0.0%	20.0%	0.0%	0.0%
Total	70	95.7%	85.7%	81.4%	70.0%	51.4%	21.4%	21.4%	20.0%	18.6%	11.4%	10.0%

Note: Only applicable for those EDs that have a formal ultrasound training program.

When asked to specify what other types of scans FACEM trainees were expected to gain proficiency in, two EDs specified ocular, two stated cardiac, and one specified bowel and musculoskeletal.

4.5.5 Quality Assurance Review of Ultrasound Examinations

Data on the percentage of ultrasound examinations that undergo quality assurance review is presented by region in Table 29 and by hospital peer group in Table 30. In both Australia and Aotearoa, approximately one-third of EDs reported that no ultrasound examinations undrewent quality assurance review. A higher percentage of Aotearoa EDs than Australian EDs (31.6% vs. 21.6%) reported that quality assurance reviews were performed on >50% of ultrasound examinations.

Table 29: Percentage of EDs that perform quality assurance review on 0%, >0% - ≤25%, >25% - ≤50%, >50% - ≤75%, and 100% of ultrasound examinations, by region.

Region	n	0% %	>0% - ≤25% %	>25% - ≤50% %	>50% - ≤75% %	>75% - <100% %	100% %
Australia	125	33.6%	40.0%	4.8%	10.4%	3.2%	8.0%
NSW	41	26.8%	46.3%	4.9%	17.1%	2.4%	2.4%
VIC	29	41.4%	34.5%	6.9%	6.9%	6.9%	3.5%
QLD	29	27.6%	37.9%	3.5%	6.9%	3.5%	20.7%
WA	12	25.0%	41.7%	8.3%	16.7%	0.0%	8.3%
SA	7	42.9%	42.9%	0.0%	0.0%	0.0%	14.3%
TAS	3	66.7%	33.3%	0.0%	0.0%	0.0%	0.0%
NT	3	100%	0.0%	0.0%	0.0%	0.0%	0.0%
ACT	1	0.0%	100%	0.0%	0.0%	0.0%	0.0%
Aotearoa	19	36.8%	26.3%	5.3%	10.5%	15.8%	5.3%
Total	144	34.0%	38.2%	4.9%	10.4%	4.9%	7.6%

Note: Three Australian EDs did not respond.

In Australia, Private and Small/ medium metropolitan EDs were more likely to report that no ultrasound examinations underwent quality assurance review. In Aotearoa, a higher percentage of Regional EDs (8.3%) than Metropolitan EDs (0%) reported quality assurance review on 100% of ultrasound examinations.

Table 30: Percentage of EDs that perform quality assurance review on 0%, >0% - ≤25%, >25% - ≤50%, >50% - ≤75%, and 100% of ultrasound examinations, by hospital peer group.

Hospital peer group	n	0%	>0% - ≤25%	>25% - ≤50%	>50% - ≤75%	>75% - <100%	100%
		%	%	%	%	%	
Australia							
Major	31	9.7%	51.6%	9.7%	12.9%	3.2%	12.9%
Large metropolitan	16	31.3%	37.5%	6.3%	18.8%	6.3%	0.0%
Medium metropolitan	28	25.0%	42.9%	0.0%	21.4%	7.1%	3.6%
Large regional	23	47.8%	43.5%	0.0%	0.0%	0.0%	8.7%
Small/ medium regional	10	60.0%	30.0%	0.0%	0.0%	0.0%	10.0%
Private	11	81.8%	9.1%	0.0%	0.0%	0.0%	9.1%
Specialist	6	16.7%	33.3%	33.3%	0.0%	0.0%	16.7%
Aotearoa							
Metropolitan	7	42.9%	14.3%	14.3%	14.3%	14.3%	0.0%
Regional	12	33.3%	33.3%	0.0%	8.3%	16.7%	8.3%
Total	144	34.0%	38.2%	4.9%	10.4%	4.9%	7.6%

Note: Three Australian EDs did not respond.

4.5.6 Who Used Ultrasound Machines in EDs

Table 31 presents the percentage of EDs that reported having other staff use their ED ultrasound machines by region, and Table 32 by peer group. A larger percentage of Australian EDs (29.7%) reported that no other staff used their ultrasound machines compared to EDs in Aotearoa (5.3%). Other medical staff and nurse practitioners were among the most reported other staff that used ultrasound machines in both Australian and Aotearoa EDs. Sites were asked to specify any other staff not listed in the Census who used their ED ultrasound machines, with some EDs reporting that extended scope physiotherapists and inpatient teams used them.

Table 31: Percentage of EDs that reported having other staff use their ED's ultrasound machine(s), by region.

Region	n	No other staff	Other medical staff	Medical students	Nurses	Nurse practitioners	Anaesthetic technicians	Sono-graphers	Echo cardio-graphers	Other
		%	%	%	%	%	%	%	%	%
Australia	128	29.7%	57.0%	9.4%	20.3%	33.6%	0.8%	11.7%	5.5%	7.8%
NSW	42	28.6%	64.3%	16.7%	21.4%	31.0%	0.0%	11.9%	7.1%	4.8%
VIC	30	33.3%	56.7%	3.3%	23.3%	30.0%	3.3%	10.0%	3.3%	6.7%
QLD	29	37.9%	34.5%	6.9%	24.1%	41.4%	0.0%	13.8%	6.9%	13.8%
WA	12	25.0%	75.0%	8.3%	8.3%	33.3%	0.0%	16.7%	8.3%	16.7%
SA	7	0.0%	71.4%	0.0%	14.3%	57.1%	0.0%	0.0%	0.0%	0.0%
TAS	3	33.3%	66.7%	33.3%	33.3%	33.3%	0.0%	33.3%	0.0%	0.0%
ACT	2	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
NT	3	0.0%	100%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Aotearoa	19	5.3%	79.0%	42.1%	31.6%	79.0%	10.5%	10.5%	0.0%	5.3%
Total	147	26.5%	59.9%	13.6%	21.8%	39.5%	2.0%	11.6%	4.8%	7.5%

Note: EDs can select more than one category of staff, therefore the total percentage is >100%.

Private EDs and Small/ medium regional EDs in Australia were more likely to report that no other staff used the ultrasound machines in their ED, than EDs in other hospital peer groups. On the contrary, Regional EDs in Aotearoa were less likely than Metropolitan EDs to report so.

Table 32: Percentage of EDs that reported having other staff use their ED's ultrasound machine(s), by hospital peer group.

Hospital peer group	n	No other staff %	Other medical staff %	Medical students %	Nurses %	Nurse practitioners %	Anaesthetic technicians %	Sono-graphers %	Echo cardio-graphers %	Other %
Australia										
Major	31	12.9%	77.4%	6.7%	35.5%	61.3%	0.0%	16.1%	9.7%	12.9%
Large metropolitan	31	29.0%	54.8%	12.9%	12.9%	32.3%	0.0%	12.9%	3.2%	6.5%
Medium metropolitan	16	31.3%	50.0%	18.8%	12.5%	37.5%	0.0%	12.5%	6.3%	6.3%
Large regional	23	30.4%	65.2%	4.4%	21.7%	13.0%	0.0%	4.4%	4.4%	4.4%
Small/ medium regional	10	40.0%	30.0%	10.0%	20.0%	20.0%	0.0%	10.0%	10.0%	0.0%
Private	11	63.7%	18.2%	0.0%	9.1%	18.2%	9.1%	9.1%	0.0%	18.2%
Specialist	6	33.3%	66.7%	0.0%	16.7%	16.7%	0.0%	16.7%	0.0%	0.0%
Aotearoa										
Metropolitan	7	14.3%	85.7%	57.1%	14.3%	85.7%	28.6%	14.3%	0.0%	0.0%
Regional	12	0.0%	75.0%	33.3%	41.7%	75.0%	0.0%	8.3%	0.0%	8.3%
Total	147	26.5%	59.9%	13.6%	21.8%	39.5%	2.0%	11.6%	4.8%	7.5%

Note: EDs can select more than one category of staff, therefore the total percentage is >100%.

Sixty-three EDs provided other comments about the ultrasound training in their ED, with a number of EDs reporting they are in the process of rolling out a formal ultrasound training program, formalising the pathway for credentialling, or that the formal ultrasound training program provided in their ED has been impacted by the COVID-19 pandemic.

5. Discussion of Findings

The 2021 Census findings highlight the availability of resources across ACEM accredited EDs, including ED treatment spaces, beds and chairs; as well as their capacity for teaching and training. The comparison of ED treatment spaces between 2016 and 2021 showed a significant difference between accredited EDs in Australia, which saw an increase in capacity (+12.3%), while Aotearoa EDs saw a decrease (-3.1%). Although Australian EDs saw an increase in the average number of beds/ chairs across all treatment spaces, the ratio of ED attendances per bed/ chair remained relatively consistent (1236 attendances per bed/ chair in 2016 vs. 1219 attendances per bed/ chair in 2021). In contrast, there was an 11.1% increase in the number of attendances per bed/ chair in Aotearoa EDs.

Across peer groups, Regional EDs generally saw the greatest increase in the number of attendances per bed/ chair than Metropolitan EDs over the past five years. However, Medium metropolitan EDs in Australia also saw an 11.1% increase in the number of attendances per bed/ chair with the average number of beds/ chairs decreasing from 651 (in 2016) to 597 (in 2021). This highlights a number of disparities in resource allocation for hospitals across different peer groups.

On-site Cardiac Catheter Laboratories available for urgent Percutaneous Coronary Intervention (PCI) for ST-Elevation Myocardial Infarction (STEMI) were reported at approximately 50% of Australian and Aotearoa EDs. In Australia, Cardiac Catheter Laboratories were largely distributed at Major EDs (100%) and Private EDs (90.9%). Less than half of Large metropolitan and Large regional EDs reported having an on-site Cardiac Catheter Laboratory. The majority of Cardiac Catheter Laboratories were available at Metropolitan EDs in Aotearoa, with only one-quarter of Regional EDs reporting having this service.

Half of Aotearoa EDs, compared to only one-quarter of Australian EDs were designated as a Major Trauma Service. Victoria reported the lowest percentage of EDs that were a designated Major Trauma Service, yet interestingly reported the highest average number of major trauma cases treated in the previous financial year.

A higher percentage of Aotearoa EDs reported sustainability practices were in place compared to Australian EDs. Over three-quarters of Aotearoa EDs reported having a designated Environmental Sustainability Officer, and almost two-thirds reported having a formal Environmental Sustainability Plan, and that efforts had been made to quantify the carbon dioxide (CO_2) emissions generated. In Australia, on the other hand, only half had reported having a designated Environmental Sustainability Officer, and even fewer reported having a formal Environmental Sustainability Plan or making efforts to quantify the CO_2 emissions and more proactive effort is warranted for Australian hospitals in this area.

Overall, between 2019 and 2021 the average number of ultrasound machines being used in EDs has increased. Similarly, the average number of emergency medicine Specialists (FACEM, PEM, SIMG) and FACEM trainees with formal ultrasound qualifications, as well as the percentage of EDs with a clinical lead for ultrasound has increased. With regards to formal ultrasound teaching, the percentage of EDs that provide formal training has increased. These results indicate that ED ultrasound resources and expertise for ultrasound teaching are improving.

In summary, the 2021 Census has illustrated the differences in services and resources by region and peer group. Some differences reflect differing access to and equity in care available to patients and will be continuously monitored in future iterations of the Annual Site Census.

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7. Suggested Citation

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8. Contact for further information

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9. Appendix 1

Australasian College for Emergency Medicine

2021 Annual Site Census

Sites with GENERAL Accreditation

1. Introduction

Each Emergency Department (ED) accredited by ACEM is required to complete this annual site census. Survey responses will inform site accreditation status and provide benchmarking data across Australia and New Zealand to inform College activities including quality improvement initiatives in education and policy. The survey covers:

- ACEM ED Staffing
- Other ED Staffing
- ED Casemix
- ED Cultural Capabilities and Staff Training
- ED Resources
- Ultrasound Teaching and Other Hospital Services

All EDs will receive a report of the survey findings. If you have any questions about this survey or the procedures, you may contact the Research Unit at: Research-Evaluation@acem.org.au

Please check your hospital name and the type of ED you have ACEM accreditation for:

Hospital: _____

ED Type: _____

2. Administration

2.1 ED and FACEM Training Program Management

Please complete the following tables relating to FACEMs with clinical or management roles in your ED, *where applicable (if zero, please indicate '0')*:

	Name	**Total FTE**
DEM 1		
DEM 2		
DEM 3		
DEM 4		
DEMT/Co-DEMT 1		
DEMT/Co-DEMT 2		
DEMT/Co-DEMT 3		
DEMT/Co-DEMT 4		
DEMT/Co-DEMT 5		
Local WBA Coordinator(s)		
Mentoring Coordinator(s)		

2.1.1 On-Floor Supervision and Clinical Support Time

	Adult/ Mixed ED Hours per week
How many hours per week are FACEMs or PEM Specialists rostered for on-floor supervision (excluding clinical support time)? (hours per week should be no greater than 168 = 24h x 7 days)	
On average, how many hours per week of Clinical Support Time is allocated for the FACEMs or PEM Specialists involved in the training, education and assessment of your trainees?	
What is the total clinical support time (hours) of the DEM role per week?	
What is the total clinical support time (hours) of the DEMT role per week?	

	Adult/ Mixed ED %
On average, what is the percentage of individual trainee time under direct FACEM or PEM Specialist supervision?	
What is the percentage of FACEMs or PEM Specialists actively performing WBA's?	

	Adult/ Mixed ED Hours per month
What is the total clinical support time (hours per month) the ED provides for Local WBA Coordinator duties?	
If applicable, what is the total clinical support time (hours per month) the ED provides for the Director of Research role duties?	

2.2 ED or hospital contacts

Please provide the following information relating to the best person to contact for data from your ED and the person who coordinates research (formally or informally) at your ED.

2.2.1 ACEM Director of Research (if applicable)

Name: _____

Total FTE: _____

2.2.2 ED research coordinator (not necessarily the ACEM Director of Research)

Name: _____

Job title: _____

Research qualifications: _____

Email: _____

2.2.3 ED or hospital data manager

☐ Same as ED research coordinator

Name: _____

Job title: _____

Email: _____

2.2.4 Best contact for the person responsible for ED quality and safety

Name: _____

Job title: _____

Email: _____

2.2.5 ED or hospital designated disaster and/or pandemic coordinator

Name: _____

Job title: _____

Email: _____

3. EM Specialist and FACEM Trainee Staffing

3.1 FACEMs/ Paediatric EM Specialists

For all current staff employed **permanently** (excluding VMOs/ Locums) by your **Adult/ Mixed ED**, please complete the following tables, *where applicable (if zero, please indicate '0')*:

	Adult/ Mixed ED Total FTE	**Adult/ Mixed ED** Total Head Count
FACEMs (with no PEM qualification)		
FACEM PEM Specialist		
FRACP PEM Specialist		

3.1.1 Vacancies

What is your current funded but unfilled FTE for the following emergency department roles? *If zero please indicate '0':*

	Funded but unfilled FTE	**Funded but unfilled for more than 6 months FTE**	**Are you actively trying to fill this vacancy?**
FACEMs			Please select
PEM Specialists†			Please select

† Includes FRACP PEM Specialists and FACEM PEM Specialists

If you have any comments relating to FACEM/ PEM Specialist vacancies, please add them below:

3.1.2 Locums

Please answer the following questions relating to Locums at FACEM level:

Are FACEMs (who are not employed at your hospital or ED) employed as Locums within your ED?

☐ No (please go to section 3.1.3)

☐ Yes

How many (total head count) are currently working in your ED? _____

How many total hours per week on average are Locums currently working in your ED? _____

3.1.3 Visiting Medical Officers (applicable for Australian EDs only)

Please answer the following questions relating to Visiting Medical Officers (VMOs) at FACEM level:

Are VMOs (at FACEM level) currently employed within your ED?

☐ No (please go to section 3.2)

☐ Yes

For all VMOs (at FACEM level) employed by your ED, please provide the following information, *where applicable (if zero, please indicate '0')*:

Total VMO FTE: _____

Total VMO Head Count: _____

Total hours per week on average VMOs currently work in your ED: _____

Please select which contract options VMOs are employed on:
(please select all that apply)

☐ Fixed hours contract

☐ Zero hours contract

☐ Other (please explain below)

3.2 FACEM trainees

For all current staff employed **permanently** (excluding VMOs/ Locums) by your **Adult/ Mixed ED**, please complete the following tables, *where applicable (if zero, please indicate '0')*:

	Adult/ Mixed ED Total FTE	**Adult/ Mixed ED** Total Head Count
Advanced trainees		
Provisional trainees		

Given the current number of FACEMs in your ED available to provide on-floor supervision and the allocated non-clinical time for DEMTs, do you have capacity to take more FACEM trainees?

☐ Yes [If yes] How many more FACEM trainees can you employ? _____

☐ No

If you have any comments relating to your capacity to take more trainees, please add them below:

3.2.1 Vacancies

What is your current funded but unfilled FTE for the following emergency department roles?
If zero please indicate '0':

	Funded but unfilled FTE	Funded but unfilled for more than 6 months FTE	Are you actively trying to fill this vacancy (Y/N)
Advanced trainees			Please select
Provisional trainees			Please select

If you have funded but unfilled FTE: Have you filled this/ these vacancies with staff other than FACEM trainees?

☐ Yes

☐ No

If you have any comments relating to FACEM trainee vacancies, please add them below:

4. ED Clinical Cover

Please outline your current typical medical rosters for both weekdays and weekends providing the number of each staff for each shift rostered on-floor and on-call*:

Adult/ Mixed ED Roster	Day		Evening		Night	
	On floor	On-call	On floor	On-call	On floor	On-call
Monday to Friday						
FACEMs/ PEM Specialists†						
FACEM trainees						
Saturday and Sunday						
FACEMs/ PEM Specialists†						
FACEM trainees						

† Includes FRACP PEM Specialists and FACEM PEM Specialists

*If your staffing model does not fit the table above, please outline it here:

5. Other ED Staffing

5.1 Other specialist ED staff (excluding FACEMs with dual qualification and FRACP PEM Specialists)

Please complete the following table regarding other specialist ED staff (excluding FACEMs with dual qualification) working in your ED:

	Total FTE
Fellows of the Royal Australian College of General Practitioners (FRACGP) or Fellows of the Royal New Zealand College of General Practitioners (FRNZCGP)	
Fellows of the Australian College of Rural and Remote Medicine (ACCRM) or Fellow of the Division of Rural Hospital Medicine of New Zealand (FDRHMNZ)	
Fellow of the Royal New Zealand College of Urgent Care (FRNZCUC) (NZ only)	
Fellows of overseas emergency medicine specialist college (on the SIMG pathway†)	
Fellows of overseas emergency medicine specialist college (not on the SIMG pathway†)	
Medical Officers on the New Zealand Specialist Scale (NZ only)	
Other specialist physicians (excluding above)	

† SIMG Pathway refers to the ACEM Specialist International Medical Graduate (SIMG) Pathway.

5.2 Other medical staff

Please complete the following table regarding other medical staff working in your ED:

	Total FTE
Non-ACEM Registrars	
Medical Officers† (Includes CMO; SMO; SRMO; SHMO; SHO and MO (NZ EDs))	
Interns/ Junior Medical Officers	
Other medical staff excluding administrative staff (not covered by the above) Please specify:	

†CMO: Career Medical Officer; SMO: Salaried Medical Officer; SRMO: Salaried Resident Medical Officer; SHMO: Senior Hospital Medical Officer; SHO: Senior House Officer.

With respect to any of your other ED staff identified above, how many of these are:

	Adult/ Mixed ED Head Count	**Total FTE**
Graduates of ACEM's EM Diploma		
Graduates of ACEM's EM Certificate (excluding EM Diploma)		

5.3 ED Administrative staff

Please complete the following table regarding ED administrative staff working in your ED:

	Total FTE
ED ward receptionist/ clerk	
EM specialist secretarial/ ED administrative assistant	

5.4 Nursing staff

Please complete the following table regarding nursing staff working in your ED:

	Total FTE
Nurse Practitioners (Including Clinical Nurse Consultant/ Specialist)	
Nurse Unit Managers	
Nursing Educators	
Mental Health nursing staff	
Total nursing staff (Including the above nursing staff and any other nursing staff e.g., enrolled nurses and registered nurses)	

6. ED Casemix

6.1 Attendances, admissions and transfers

For the period 1 July 2020- 30 June 2021, please provide where applicable the total number of:
(*If not applicable write n/a*)

	Total	**Adults** Incl. geriatric	**Paediatrics** ≤15 years*	**Geriatrics** ≥65 years
Patient attendances				
ATS 1 attendances				
ATS 2 attendances				
ATS 3 attendances				
ATS 4 attendances				
ATS 5 attendances				
Number of ambulance arrivals				
Inpatient admissions				
Inter-hospital transfers from ED				
SSU† (or equivalent) admissions from ED				
ICU† admissions from ED				
HDU† admissions from ED				
CCU† admissions from ED				
Paediatric ICU† admissions from ED				
Suspected COVID** (if captured by your EMR)				

†SSU=Short Stay Unit; ICU=Intensive Care Unit; HDU=High Dependency Unit; CCU= Critical Care Unit.

*We acknowledge that some sites capture paediatric data using a different definition for paediatric patients, please provide paediatric data that fits within your definition.

** This includes cases of suspected COVID-19 that were confirmed by laboratory testing, those that produced a negative test result, and those where the result was inconclusive, unavailable or unspecified.

For the period **1 July 2020- 30 June 2021**, please provide where applicable the total number of:
(*If not applicable write n/a*)

	Total
The total number of Aboriginal & Torres Strait Islander presentations for Australian EDs OR the total number of Māori presentations for New Zealand EDs	

6.2 ED Performance and Hospital Access Targets

For the period **1 July 2020- 30 June 2021**, please provide where applicable the total number of:
(*If not applicable write n/a*)

	Total
The total number of patient attendances who stayed in your SSU (or equivalent) for >24 hours	
The total number of patient attendances who stayed in your ED (excluding SSU or equivalent) for >24 hours	

ACEM has developed 'Hospital Access Targets', a new access measure that describes three patient streams and sets distinct targets for those streams. For more information please see: https://acem.org.au/Content-Sources/Advancing-Emergency-Medicine/Better-Outcomes-for-Patients/Access-Block-(1)/Hospital-Access-Targets.

6.2.1 Patients needing to be admitted or transferred

For the period **1 July 2020- 30 June 2021**, please provide where applicable the total number of patients needing to be admitted to hospital or transferred to another hospital:
(*If not applicable write n/a*)

	Total
The total number of patients needing to be admitted or transferred to another hospital	
The total number who stayed in your ED (excluding SSU or equivalent) for no more than four (4) hours.	
The total number who stayed in your ED (excluding SSU or equivalent) for no more than six (6) hours.	
The total number who stayed in your ED (excluding SSU or equivalent) for no more than eight (8) hours.	
The total number who stayed in your ED (excluding SSU or equivalent) for no more than twelve (12) hours.	

6.2.2 Discharged patients

For the period 1 July 2020- 30 June 2021, please provide where applicable the total number of discharged patients:
(*If not applicable write n/a*)

	Total
The total number of discharged patients	
The total number who stayed in your ED (excluding SSU or equivalent) for no more than four (4) hours.	
The total number who stayed in your ED (excluding SSU or equivalent) for no more than eight (8) hours.	
The total number who stayed in your ED (excluding SSU or equivalent) for no more than twelve (12) hours.	

6.2.3 Patients needing to be admitted to a SSU (or equivalent) for observation

For the period 1 July 2020- 30 June 2021, please provide where applicable the total number of patients needing to be admitted to a SSU (or equivalent) for observation:
(*If not applicable write n/a*)

	Total
The total number of patients needing to be admitted to a SSU (or equivalent) for observation	
The total number who stayed in your ED for no more than four (4) hours.	
The total number who stayed in your ED for no more than eight (8) hours.	
The total number who stayed in your ED for no more than twelve (12) hours.	

6.3 Ambulance bypass and handover

For the period 1 July 2020- 30 June 2021, please provide where applicable the total number of:
(*If not applicable write n/a*)

	Total
The total number of hours of ambulance bypass/ diversion for your ED.	
The total number instances where ambulances waited more than 30 minutes to complete the handover to the ED	

6.4 Cultural capabilities

6.4.1 Indigenous Health

According to the Australian Institute of Health and Welfare: Under-identification of Indigenous people in national health data sets is an ongoing challenge

Please consider if the standard Indigenous status question is appropriately and reliably asked of all patients attending your ED and rate the quality and reliability of Indigenous status data collected in your ED using the scale provided:

	Poor	Fair	Good	Very Good	Excellent
The quality of the data	☐	☐	☐	☐	☐
The reliability of the data	☐	☐	☐	☐	☐

If you have any comments on Indigenous presentations to your ED or the quality or reliability of the Indigenous status data captured by your ED, please provide them here:

Does your ED have an Indigenous Health Liaison Officer or equivalent (*please select all that apply*)?

- ☐ Employed by your ED
- ☐ Employed by your hospital and available in your ED
- ☐ Employed off-site but available to your ED
- ☐ My ED does not have access to an Indigenous Health Liaison Officer

If you have access to an Indigenous Health Liaison Officer or equivalent in your ED: What is the availability of the Indigenous Health Liaison Officer(s) or equivalent in your ED:
(please select all that apply)

		Day	**Evening**	**Night**
On site	Monday to Friday	☐	☐	☐
	Saturday and Sunday	☐	☐	☐
Off site or on call	Monday to Friday	☐	☐	☐
	Saturday and Sunday	☐	☐	☐
Other, please specify:				

If you have access to an Indigenous Health Liaison Officer or equivalent in your ED: How often is the Indigenous Health Liaison Officer (or equivalent) asked to see patients in ED?

- ☐ Rarely
- ☐ Occasionally
- ☐ Sometimes
- ☐ Often
- ☐ Very often
- ☐ Unsure

Does your ED have any other Indigenous health or support workers (e.g. Peer Support Workers, Aboriginal Access Workers, Waiting Room Greeters) who operate in the ED or waiting room to support your Indigenous patients and carers?

- ☐ No
- ☐ Yes [If yes] Is it/ are they an identified position?
  - ☐ No
  - ☐ Yes

  Please describe what this/these role(s) are and how they operate in your ED/ waiting room:

Please describe any other activities or initiatives that focus on cultural safety for Indigenous patients and carers in your ED:

6.4.2 Culturally and Linguistically Diverse (CALD) and other diverse patients

Are interpreter services available to your ED patients:

- ☐ No
- ☐ Yes

If you have interpreter services: Are interpreter services available:

☐ 24 hours, 7 days a week

OR (please select all that apply)

	Day	Evening	Night
Monday to Friday	☐	☐	☐
Saturday and Sunday	☐	☐	☐

If you have interpreter services: Are the interpreter services available:

	Pre-COVID Pandemic	During the COVID Pandemic
In person	☐	☐
Over the phone	☐	☐
Via video service	☐	☐

If you have interpreter services: Prior to the COVID pandemic, please comment on any barriers to the use of this service in your ED, if applicable.

If you have interpreter services: How has the COVID-19 pandemic impacted the availability of interpreter services to your ED?

Does your ED have access to any other support workers for CALD and other diverse patients and carers (e.g., Cultural Liaison Officers, Waiting Room volunteers, Pastoral care) who operate in the ED or waiting room?

☐ No

☐ Yes [If yes] Please describe what this/these role(s) are and how they operate in your ED/ waiting room:

Please describe any other activities or initiatives in your ED that focus on cultural safety for diverse patients and carers, including CALD patients:

7. ED Staff Training

7.1 Cultural Competency Training

Is cultural competency training available to staff in your ED?

- ☐ Yes
- ☐ No [If no] Please provide the reason for why it is not available:

7.2 Discrimination, Bullying, Sexual Harassment and Harassment (DBSH) Training

Is DBSH training available to staff in your ED?

- ☐ Yes
- ☐ No [If no] Please provide the reason for why it is not available:

8. ED Resources

8.1 Beds and chairs

Please provide the number of beds and chairs, where applicable for the following areas:
If zero, please indicate '0'.

	Adult/ Mixed ED	
	Beds	**Chairs**
Resuscitation		
Adult Emergency/ Acute		
Paediatric Emergency/ Acute*		
Short Stay Unit (or equivalent)		
Paediatric Short Stay Unit (or equivalent)*		
Low Acuity / Sub-Acute / Fast-track		
Paediatric Low Acuity / Sub-Acute / Fast-track*		
ED Mental Health Assessment (includes Behavioural Assessment Unit, Safe Assessment Room)		

*If you have a separate paediatric allocation.

8.2 Sustainability

	Yes	**No**
Do you have an Environmental Sustainability Officer or equivalent in your ED or hospital?	☐	☐
Do you have a formal Environmental Sustainability Plan or equivalent for your ED or hospital?	☐	☐
Have any efforts been made to quantify the carbon dioxide emissions ('carbon footprint') generated by your ED or hospital?	☐	☐

8.3 Infection Control

	Total
How many negative pressure rooms do you have in your ED?	
Of these, how many have anterooms?	

9. Ultrasound Teaching

	Total
How many ultrasound machines are currently in operation in your ED?	

If you have ultrasound machines: How many FACEMs, PEM Specialists, FACEM trainees and SIMGs in your ED have met the ACEM guideline for credentialing (via either on-site credentialing or external qualifications) in:

	Total
EFAST	
AAA	
Lung	
FELS	
Procedural guidance	

Of those who are credentialed, how many FACEMs, PEM Specialists, FACEM trainees and SIMGs in your ED have formal ultrasound qualifications? (e.g., CCPU, DDU, RDMS)

_____

Do you keep a current list of all those that are credentialed for each modality?

☐ No

☐ Yes

If you have ultrasound machines: Does your ED have a clinical lead for ultrasound? (e.g., Director of Emergency Ultrasound or equivalent)

☐ No

☐ Yes **[If yes]** How many hours of Non-Clinical time per week are they allocated for this role? (includes scanning patients but not preforming their 'normal' emergency physician role):

_____

If you have ultrasound machines: Does your ED have a formal ultrasound training program?

- ☐ No, none
- ☐ No, informal teaching only
- ☐ Yes **[If yes]** What scans are FACEM trainees expected to gain proficiency in? (select all that apply):
  - ☐ AAA
  - ☐ EFAST
  - ☐ Procedural guidance
  - ☐ FELS
  - ☐ Lung
  - ☐ Early pregnancy
  - ☐ Biliary
  - ☐ Renal
  - ☐ Soft tissue
  - ☐ DVT
  - ☐ Other (please specify): _____
  - ☐ None

If you have ultrasound machines: What per cent of all ultrasound examinations in your ED currently undergo quality assurance review?

- ☐ 0%
- ☐ >0% and ≤25%
- ☐ >25% and ≤50%
- ☐ >50% and ≤75%
- ☐ >75% and <100%
- ☐ 100%

If you have ultrasound machines: Who else uses your ED ultrasound machine(s)? (select all that apply)

- ☐ Other medical staff (e.g., anaesthetists, cardiologists, ICU staff)
- ☐ Medical students
- ☐ Nurses
- ☐ Nurse practitioners
- ☐ Anaesthetic technicians
- ☐ Sonographers
- ☐ Echo cardiographers
- ☐ Other (please specify): _____
- ☐ No one else uses the ED ultrasound machine(s)

If you have any other comments to make about the ultrasound training in your ED, please provide them here:

10. Other Hospital Services

10.1 Cardiac Catheter Lab

	Yes	No
Do you have on-site Cardiac Catheter Lab for urgent PCI in STEMI?	☐	☐

10.2 Major Trauma Service

How many major trauma cases with an ISS>12 did your hospital treat in the 2020-21 financial year?

_____

Is your hospital designated as a Major Trauma Service?

☐ Yes

☐ No

This is the end of the Census, please save it and email it to the Research Unit at:

Research-Evaluation@acem.org.au