Australasian Clinical Indicator Report

21ST EDITION

2012-2019

ACHS

AUSTRALASIAN CLINICAL INDICATOR REPORT: 2012–2019: 21ST EDITION.

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DISCLAIMER

The expert commentary provided by the colleges, societies, and associations is contributed in response to a request from ACHS. Although ACHS appreciates the insights provided, it does not necessarily agree with or endorses the views expressed.

RECOMMENDED CITATION

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ACKNOWLEDGMENTS

The Australian Council on Healthcare Standards (ACHS) would like to thank the healthcare organisations (HCOs) participating in the ACHS Clinical Indicator Program for their data, which form the content of this report.

The ACHS Performance and Outcomes Service (POS) would also like to thank its collaborators in the development and review of the Clinical Indicators (CIs), particularly the Working Party Chairs and members. In addition, POS acknowledges the role played by the Health Services Research Group (HSRG) at the University of Newcastle in preparing this report.

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CLINICAL INDICATOR WORKING PARTIES

ACHS CIs are developed by Working Parties comprising practising clinicians (medical officers, nurses and allied health professionals in the relevant specialty field), representatives of the relevant Australian and New Zealand colleges, associations and societies, consumer representatives, statisticians and ACHS staff.

Selected Working Parties meet several times throughout the year, both in person and via teleconference, to review the existing CIs and explore areas for new CIs. The revised version of the CI set and its User Manual are then endorsed by the relevant colleges, associations or societies prior to implementation.

CI sets are regularly reviewed to ensure:

- they are relevant for clinicians
- they continue to reflect today's healthcare environment
- there is consensus on collection and reporting requirements
- they are regarded as useful for quality improvement.

TABLE 1: List of Clinical Indicator Working Party Chairs and Participating Organisations

CI SET	WORKING PARTY CHAIR	PARTICIPATING ORGANISATIONS
Anaesthesia and Perioperative Care V6	Dr Joanna Sutherland (ANZCA)	Australian and New Zealand College of Anaesthetists Australian Society of Anaesthetists
Day Patient V5	Ms Mary Kirkwood (APHA)	Australian Private Hospitals Association Day Hospitals Australia Australian Day Surgery Nurses Association
Emergency Medicine V6	A/Prof Melinda Truesdale (ACEM)	Australasian College for Emergency Medicine College of Emergency Nursing Australasia
Gastrointestinal Endoscopy V2	A/Prof William Tam (GESA)	Day Hospitals Australia Gastroenterological Society of Australia Gastroenterological Nurses College of Australia
Gynaecology V7	Dr Martin Ritossa (RANZCOG)	The Royal Australian and New Zealand College of Obstetricians and Gynaecologists Australian College of Nursing
Hospital in the Home V5	A/Prof Mary O'Reilly (HITHSA)	Hospital in the Home Society Australasia
Hospital-Wide V12.1	Dr David Rankin (RACMA)	The Royal Australasian College of Medical Administrators The Royal Australasian College of Surgeons Australian College of Nursing
Infection Control V5	Dr Philip Russo (ACIPC)	Australasian College for Infection Prevention and Control Australian College of Nursing
Intensive Care V5	A/Prof Mary White (ANZICS)	Australian and New Zealand Intensive Care Society College of Intensive Care Medicine of Australia and New Zealand Australian College of Critical Care Nurses
Internal Medicine V6.1	Prof Donald Campbell (IMSANZ)	Internal Medicine Society of Australia and New Zealand Australian College of Nursing
Maternity V8	Prof Michael Permezel (RANZCOG)	The Royal Australian and New Zealand College of Obstetricians and Gynaecologists Australian College of Midwives
Medication Safety V4	Dr Sasha Bennett (NSW TAG)	NSW Therapeutic Advisory Group Clinical Excellence Commission Australian Commission on Safety and Quality in Health Care
Mental Health V7	Dr Bill Kingswell (RANZCP)	Royal Australian and New Zealand College of Psychiatrists Australian College of Mental Health Nurses
Ophthalmology V6	Dr Michael Hennessy (RANZCO)	The Royal Australian and New Zealand College of Ophthalmologists Australian Ophthalmic Nurses' Association
Oral Health V4	Dr Hugo Sachs (ADA)	Australian Dental Association Royal Australasian College of Dental Surgeons
Paediatrics V5.1	Dr Simon Fraser (PCHD, RACP)	Paediatrics and Child Health Division of The Royal Australasian College of Physicians Australian College of Children and Young People's Nurses Women's and Children's Healthcare Australasia

TABLE 1: List of Clinical Indicator Working Party Chairs and Participating Organisations

CI SET	WORKING PARTY CHAIR	PARTICIPATING ORGANISATIONS
Pathology V4.1	A/Prof Peter Stewart (RCPA)	The Royal College of Pathologists of Australasia Australian College of Nursing
Radiation Oncology V4	Prof Jeremy Millar (RANZCR)	Faculty of Radiation Oncology of The Royal Australian and New Zealand College of Radiologists Australian College of Physical Scientists and Engineers in Medicine Australian Society of Medical Imaging and Radiation Therapy
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Rehabilitation Medicine V6	Ms Frances Simmonds (AROC, AFRM)	Australasian Rehabilitation Outcomes Centre Australasian Faculty of Rehabilitation Medicine

FOREWORD

On behalf of the Australian Council on Healthcare Standards (ACHS), I would like to present the *Australasian Clinical Indicator Report 21st Edition 2012-2019*. The report examines data sourced from a broad range of clinical specialty areas. As in previous years, the 21st Edition of the Australasian Clinical Indicator Report provides key points on significant trends, strata differences and outlier effects between 2012 and 2019 for a broad range of Clinical Indicators.

The report also includes commentary by professionals within the respective healthcare specialty to provide context to the complex and ever-changing healthcare environment and provide insight for the potential to improve quality and safety within their facility.

During the 31-year history of developing the Clinical Indicators and this new *Australasian Clinical Indicator Report*, ACHS has proudly collaborated with medical colleges, societies, and associations. These key stakeholders have been offered the opportunity to contribute comments within their specialist area for each of the 20 Clinical Indicator sets, which contain 324 individual Clinical Indicators.

Dr Brian Collopy and Simon Cooper have written the feature report contained within this year's Report. It discusses maintaining Clinical Indicator relevance in a period of significant technological change and when the use of data is growing exponentially.

The ACHS provides the *Australasian Clinical Indicator Report* to key health industry bodies, Federal and State Governments, our members and assessors, and other interested parties. The report is available to download on the ACHS website. A full retrospective report for each Clinical Indicator set is also available on the website.

To conclude, I have confidence that the *Australasian Clinical Indicator Report 21st Edition 2012-2019* will provide you with valuable knowledge of our healthcare industry for which it was intended. In providing this insight, I would like to extend my appreciation to all collaborating colleges, associations, and societies. Their continued support of the Clinical Indicator Program allows us to continue our efforts to improve healthcare standards in Australia and internationally.

Prof Len Notaras AM
ACHS President
September 2020

ABOUT THE AUSTRALASIAN CLINICAL INDICATOR REPORT (ACIR)

This Australasian Clinical Indicator Report 21st Edition 2012-2019 provides an overview of the results for each CI set for the last eight years, with additional commentary from the collaborating medical colleges, associations, specialist societies and other clinical organisations. Their expertise provides context for the trends or variations observed in the data.

A Printed Report

This report summarises the CI data submitted to the ACHS Clinical Indicator Program for the years from 2012-2019. The report highlights significant trends or variation in the data over time, which can suggest areas where there is scope to improve practice.

The Summary of Results section, commencing on page 23, describes observations drawn from the data of each CI. To capture the context and circumstances that influence the data, ACHS draws upon the expertise of the specialist healthcare colleges, societies, and associations, in addition to the other clinical organisations with which it collaborates. Their comments and expert feedback precede the summaries of the data and share subheadings within the Summary of Results and the ACIR Retrospective Data in Full Report, to assist cross-referencing.

The expert commentators review the retrospective data in full and respond to questions from ACHS. The views expressed in the commentaries are those of the authors, and not necessarily shared by ACHS.

ACIR Retrospective Data in Full Report

Every year, the Australasian Clinical Indicator Report (ACIR) lists collective performance against each of the ACHS CIs. This information is published on the ACHS website: **https://www.achs.org.au/programs-services/clinical-indicator-program/acir-australasian-clinical-indicator-report/** and can be accessed by scanning this QR code with a smartphone or device.

An ACIR Retrospective Data in Full Report is created for every Clinical Indicator set and provides detailed information about each CI collected in 2019. Listed within the report are the CI, its intent, the numerator, and denominator. Tables summarise the data submitted in every year since 2012 that the CI has been available for reporting.

Trends in the rates over time are reported with statistical significance, and the data are displayed in a graph if four or more years of data are available from five or more HCOs. There are three measures of variation in rates between HCOs included in this report. These are quantified by the differences between the 20th and 80th centiles.

Where significant differences between strata have occurred in 2019, these data are reported in additional tables, and the information is illustrated graphically using box plots. The absence of a specific comparator table means that the differences between strata were not statistically significant at three standard deviations or that the minimum number of contributors to enable comparison was not met. Outlier information is displayed through funnel plots.

The full report also statistically estimates the potential improvement (gains) for all eligible CIs, if changes in the distribution of rates were achieved.

Statistical Methods

The statistical methods used to analyse and report these data are also available online at **https://www.achs.org.au/programs-services/clinical-indicator-program/acir-australasian-clinical-indicator-report/**, along with a description of how to read, understand and use the retrospective data.

KEY RESULTS OF 2019

IMPROVEMENTS

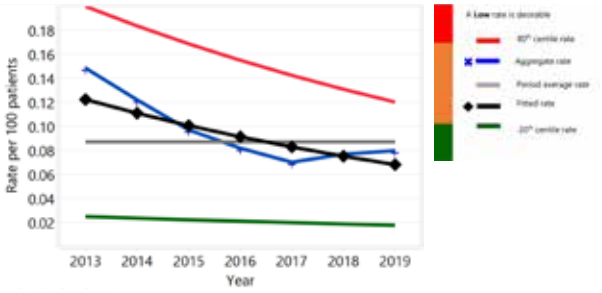
In 2019, there were 114 CIs which showed statistically significant trends in the desired direction. Of these, 59 CIs remained significant after allowing for changes in the composition of HCOs contributing over the period. There were 8 CI sets that had an improvement in at least two-thirds of all significantly trended CIs. They were Anaesthesia and Perioperative Care, Day Patient, Emergency Medicine, Gynaecology, Hospital in the Home, Hospital-Wide, Infection Control and Intensive Care. For the CIs denoted below (L) means low desirable rate while (H) means high desirable rate. There were noteworthy improvements in the following sets:

Day Patient

4.1 Patients who experience an adverse event during care delivery (L)

This well reported indicator shows that the rate of adverse events reported during care delivered for day procedure centres approximately halved. The fitted rate has dropped from 0.12 in 2013 to 0.068 in 2019. There was a decrease in system wide variation as measured by the difference between the 80th and 20th centiles, showing a significant improvement in the previous poorer performers.

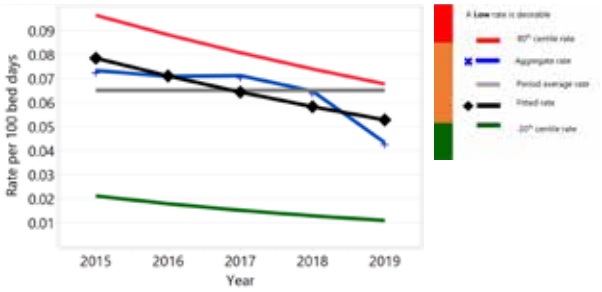
Trend plot of rates and centiles by year



Hospital-Wide

3.1 Inpatients who develop 1 or more pressure injuries (L)

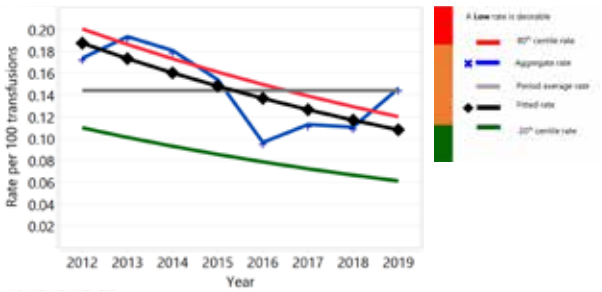
The rate of inpatients who develop 1 or more pressure injuries has decreased significantly since 2015.The fitted rate decreased by approximately one third from 0.078 to 0.053 per 100 bed days. The rate of both the 20th and 80th centiles continues to improve. In 2019, 366 HCOs reported 4,868 pressure injuries in 11,259,237 bed days (0.0432 per 100 bed days).



Hospital-Wide

6.1 Significant adverse blood transfusion events (L)

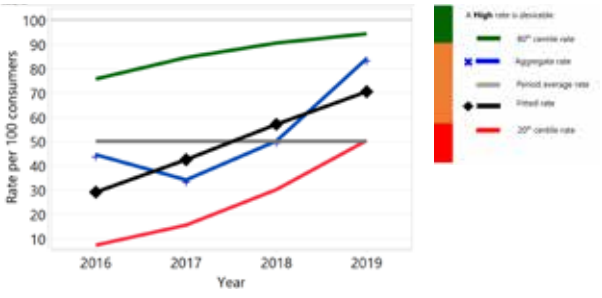
The rate of significant adverse events from blood transfusion in healthcare organisations has decreased significantly since 2012, with a decrease from 0.19 to 0.11 per 100 transfusions. The decrease was accompanied by improvements in both the 20th and 80th centiles over the review period.



Mental Health

3.7 Monitoring of metabolic side effects for consumers taking regular antipsychotic medications (H)

The rate of monitoring of metabolic side effects for consumers taking regular antipsychotic medications has improved over the short period the indicator has been in use. The four-year period shows an improvement in the fitted rate from 29.3 to 70.7 percent. There was a significant improvement in the 20th and 80th centiles, showing industry-wide improvement.



KEY RESULTS OF 2019

DETERIORATIONS

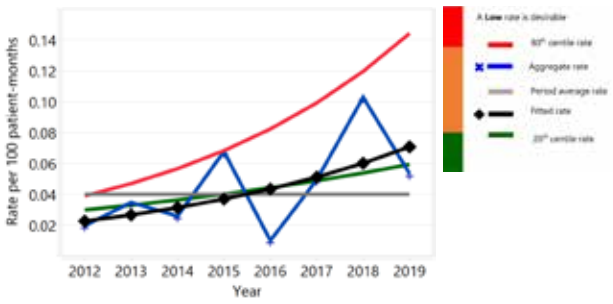
In 2019, there were 47 CIs which showed statistically significant trends in the undesirable direction. Of these, 15 remained significant after allowing for changes in the composition of HCOs contributing over the period. It is recommended that HCOs give consideration to determining and to addressing the reasons for the deterioration.
There were noteworthy deteriorations in the following sets:

Infection Control

3.1 Haemodialysis – Arteriovenous-fistula access-associated blood-stream infection (L)

The rate of patients on haemodialysis with an arteriovenous fistula access-associated blood-stream infection grew from a low fitted rate in 2012 of 0.023 to 0.071 per 100 patient-months in 2019. There has also been a corresponding increase in variability in the data with divergent 20th and 80th centiles.

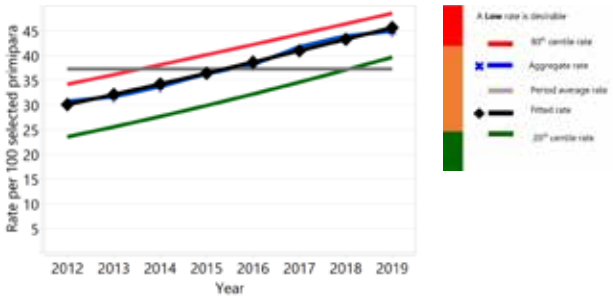
Trend plot of rates and centiles by year



Maternity

1.2 Selected primipara - induction of labour (L)

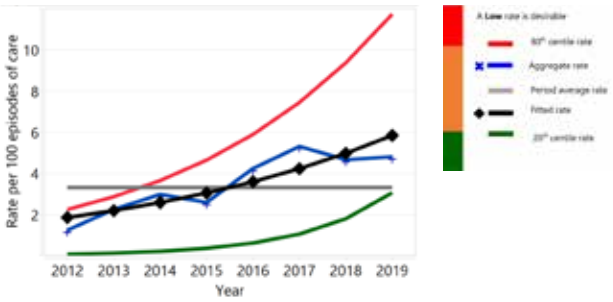
The rate of induction of labour for the selected set of primipara mothers has increased since 2012 with a deterioration from 30 to 45.6 percent of births. There has been a steady increase in both the 20th and 80th centile rates during the period and the trend does not appear to be flattening, which indicates this is an ongoing trend.



Mental Health

5.4 Physical restraint - 1 or more episodes (L)

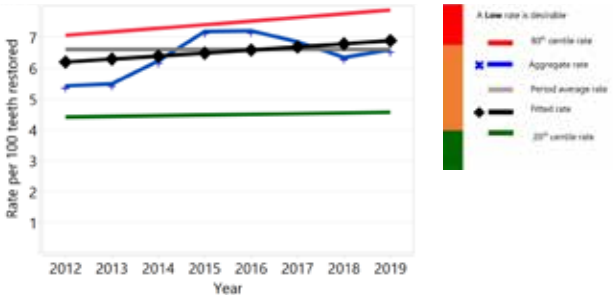
There is an ongoing increase in the rate of physical restraint. The fitted rate increased from 1.9 to 5.7 per 100 episodes of care between 2012 and 2019. In 2019, there were 35 records from 22 HCOs. The annual rate was 4.8 per 100 episodes of care. Both the poorest 80th centile rate and the best 20th centile rate deteriorated over the period.



Oral Health

1.1 Restorative treatment - teeth retreated within 6 months (L)

The rate of teeth needing repeated restorative treatment within 6 months of the primary treatment has deteriorated with a fitted increase from 6.2 to 6.9 per 100 teeth restored. The best 20th centile rate has remained steady.



THE CLINICAL INDICATOR PROGRAM: KEY FACTS 2019

In this Australasian Clinical Indicator Report 21st Edition 2012-2019, there are a total of 20 Clinical Indicator (CI) sets. In 2019 there were data submitted for 313 of the possible 324 CIs across these sets. Data within this report are submitted from healthcare organisations (HCOs) from every state and territory within Australia, HCOs within New Zealand and member organisations located in Asia. These HCOs are from both the public and private sectors, and from metropolitan and non-metropolitan regions.

Clinical Indicators and data submissions

Participation in the Clinical Indicator Program is voluntary for HCOs. An eight-year trend of number of HCOs participating in the program demonstrates a consistent level of participation in the program. Variation of increased participation is noted in 2014 – 2016, due to the NSW Ministry of Health (MOH) Occupational Exposure initiative, which mandated that NSW public hospitals collect two occupational exposure indicators within the Infection Control clinical indicator set. ACHS was contracted to collate and generate occupational exposure data for the 203 eligible public health organisations in NSW. From 2016, NSW Workcover no longer required the NSW MOH to collect this data.

A review of state by state participation at this time noted that the increase in collection from 2014 – 2016 is only in NSW, and directly related to the NSW MOH project. In this edition of the report, ACHS has excluded HCOs participating only in the NSW MOH project that was running in parallel to the Clinical Indicator program, to more accurately reflect trends of participation. HCOs participating in the MOH project and also collecting one or more other ACHS indicators have been retained in the data, contributing to the increase in HCO participation in 2015.

The number of participating private hospitals remained steady between 2012 to 2019. With recent increased engagement of private hospitals in the program, it is likely that number of HCOs reporting in this sector will be reflected as an increase in subsequent reports. Recent mergers and reorganisation of smaller individual facilities now reporting as one larger HCO has consolidated the number of HCOs reporting, in some cases. High retention of HCOs participating in the Clinical Indicator program is noted.

While most organisations make two submissions to each of their selected CIs in a year, it should be noted that some organisations submit intermittently. The data are analysed and comparison reports are prepared for submitting HCOs every six months. A slight increase in the average number of actual CIs reported by an HCO is noted.

In 2019, the total number data submissions was 28,459. The number of submissions from the private and public sectors were 16,740 and 11,719 respectively.

Table 2 gives the number of CIs and sets by sector, the number of reporting HCOs and the number of six-monthly CI data submissions. **Table 2** gives the number of CIs and sets by sector, the number of reporting HCOs and the number of six-monthly CI data submissions.

Table 2: Number of CI sets, CIs, HCOs reporting and data submissions in 2012-2019

	2012	2013	2014	2015	2016	2017	2018	2019
Clinical Indicator Sets	22	22	22	21	20	20	20	20
Clinical Indicators	335	338	328	314	318	324	332	324
Reporting HCOs								
Private	335	323	325	328	323	326	326	317
Public	345	346	407	439	404	351	329	322
Total	670	669	732	767	727	677	655	639
Submissions *								
Private	18,427	17,723	17,963	17,041	16,869	17,218	17,546	16,740
Public	20,435	18,563	17,102	15,404	14,772	13,647	12,614	11,719
Total	38,862	36,286	35,065	32,445	31,641	30,865	30,160	28,459

* CI data are submitted every six months. Most HCOs submit data twice a year; however, some submit data for one-half of the year only.

HCOs reporting

In 2012 and 2013 there were similar numbers of public and private HCOs reporting. From 2014 – 2016, there were more public than private HCOs reporting, due to the NSW MOH project. Between 2017 – 2019 there were similar numbers of public and private HCOs reporting.

The geographic breakdown of the number of public and private HCOs submitting data is presented in Table 3. There were 412 metropolitan HCOs and 227 non-metropolitan HCOs participating in the Clinical Indicator Program in 2019.

Table 3: Number of HCOs reporting by state, sector and metropolitan/non-metropolitan characteristics in 2019

Location	Private	Public	Metropolitan	Non-metropolitan	Total
New South Wales	120	90	151	59	210
Victoria	61	96	80	77	157
Queensland	65	29	62	32	94
South Australia	19	71	49	41	90
Western Australia	17	25	38	4	42
Tasmania	7	4	0	11	11
Australian Capital Territory	8	2	10	0	10
Northern Territory	1	2	0	3	3
New Zealand	1	2	3	0	3
Asia	18	1	19	0	19
Total	**317**	**322**	**412**	**227**	**639**

Clinical Indicators reported by each HCO

In 2019, the average number of individual CIs reported was 23.3, with half of all HCOs reporting between nine and 32 CIs (25th and 75th centiles). The variation in the number of CIs reported by each HCO is mostly due to the different services provided by the HCO. For example, not all HCOs have an emergency department, intensive care unit, obstetrics, paediatrics or other specialities.

During the last three years, the mean and median number of CIs collected by individual HCOs in each year has remained relatively stable. The median number of CIs collected varied between 14 and 16 and the mean varied between 20.3 and 23.3.

Table 4 shows that in 2019 there were five CI sets with at least 150 HCOs providing data. While there are five CI sets where fewer than 50 HCOs participate, a small number of HCOs may still provide a representative sample of all HCOs in Australia and New Zealand for some CIs. However, from a quality improvement perspective, it means that these HCOs have less data with which to determine whether the clinical areas in these sets could potentially improve their performance.

Table 4 : HCOs providing data for one or more CIs within each CI set in 2012-2019

Clinical Indicator Set	2012	2013	2014	2015	2016	2017	2018	2019
Anaesthesia and Perioperative Care	288	273	261	250	241	241	242	231
Day Patient	370	337	318	308	290	280	277	282
Emergency Medicine	181	174	150	137	137	112	96	100
Gastrointestinal Endoscopy	91	77	78	76	80	79	77	85
Gynaecology	65	58	52	58	61	66	60	56
Hospital in the Home	37	39	34	30	17	19	20	20
Hospital-Wide	478	466	468	525	486	431	418	416
Infection Control†	334	424	424	401	351	345	343	339
Intensive Care	104	102	107	96	93	91	89	95
Internal Medicine	74	62	46	36	32	25	25	24
Maternity	188	184	175	170	166	157	144	135
Medication Safety	259	260	269	276	265	268	275	275
Mental Health	125	119	118	105	84	93	93	96
Ophthalmology	77	72	75	64	66	55	53	58
Oral Health	15	14	84	90	92	86	88	85
Paediatrics	40	37	11	29	27	21	35	39
Pathology	42	40	44	39	35	38	34	25
Radiation Oncology†	20	17	14	14	13	8	9	8
Radiology†	69	64	41	40	41	35	23	23
Rehabilitation Medicine	122	115	105	102	122	120	121	124
Any Clinical Indicator	**670**	**731**	**807**	**825**	**736**	**681**	**656**	**633**

†Revised Clinical Indicator set introduced in 2017
Infection Control, Radiology and Radiation Oncology were revised and combined in 2017

MAINTAINING CLINICAL INDICATOR RELEVANCE

B Collopy FRACS, FRACMA. Clinical Advisor, Performance & Outcomes Service, ACHS
S Cooper B Biotech, MBM. Manager, Performance & Outcome Service, ACHS

Introduction

Just as with the development of clinical practice guidelines (CPGs) there is a need and an obligation on the part of the developers of performance measures, such as clinical indictors (CIs), to ensure that they remain relevant to current clinical practice. Whilst there is a moderate amount of literature in this regard for CPGs[1, 2,] only a small number of articles address methods for updating CIs and provide limited value in the identification of assessable criteria[3]. For a program that is now in its 27th year of operation, the Australian Council on Healthcare Standards (ACHS) early on had established a process of approximately three-yearly reviews of each CI set, addressing individual CIs for evidence of their value as flags to indicate the quality of patient care. Table A lists 11 CI sets which have had more than five revisions.

Signs of effectiveness/importance of a Clinical Indicator

i. A high return of data. For example, 365 health care organisations (HCOs) returned data on inpatient falls and 249 HCOs returned data on unplanned readmissions to hospital in the first half of 2019
ii. A desirable trend, as demonstrated in the 2018 and 2019 data for bile duct injury at cholecystectomy, and for central line infections in ICU[4]
iii. An undesirable trend, as demonstrated in the 2019 data for aspiration following endoscopy and for episodes of physical restraint[4]
iv. HCO reported actions. Prior to a review of the CI set a survey of HCOs is conducted, requesting information on actions taken following review of their peer-comparative data. An example of HCO-reported actions for the Hospital-Wide CI set in 2017, is shown in Table B.
v. Early response to a CI's introduction. With a number of CIs a marked response can be seen within the first 2-3 years following their introduction, as was seen with the pre-anaesthetic consultation rate and with patients being discharged on three or more psychotropic drugs[5]

Signs of ineffectiveness of a Clinical Indicator

i. A low return of data. For example, in 2018 only four HCOs returned data on documented discharge plans for acute asthma patients.
ii. No change in the rate. For example, in 2018 the rate for cancellation of a day procedure due to the presence of an acute medical condition remained unchanged whilst the rate for cancellation due to a pre-existing medical condition decreased over the same period. Clearly the issue in the latter group was foreseeable and therefore correctable, but the circumstances in the former group were unlikely to be within the control of the providers.
iii. A plateau reached. An important attribute of a CI is its responsiveness. This is reduced when a rate approaches 100% (for process CIs) or zero (for outcome CIs) as shown in Figure 1.
iv. Rate deterioration after initial improvement. This may occur due to a change in clinical practice, as is seen in Figure 2. In this example the change resulted from HCOs introducing percutaneous coronary intervention (PCI) as the initial urgent management for patients with ST elevation in acute myocardial infarction (STEMI)[6]. "Door to balloon time" CIs have now been introduced to address this, the thrombolysis CI remaining for those HCOs without the facility for PCI.

Review process for a Clinical Indicator set

i. Contributing HCOs are surveyed for opinions on the current set including possible revisions, deletions and suggestions for new CIs
ii. Peak body representation is sought for the Chair and membership of a multidisciplinary working party, which would include a University health care statistician and a consumer representative, as well as members of the ACHS Performance and Outcome Service (POS)
iii. Once formed, a similar survey (as in i.) of the working party members is then conducted
iv. A one day Working Party meeting is held, the members having been provided with results of the two surveys, the set's 'Long Report' (containing the previous 8 years of data), the current User Manual and suggestions for retention, revision or deletion, from the POS Clinical Advisor
v. Correspondence with the Working Party members to confirm the content of the revised (or new) set of CIs

Production of the revised set

i. A literature review is performed for each new or revised CI
ii. A new User Manual is developed
iii. The User Manual is endorsed by the relevant peak body or bodies
iv. Confirmation of the set by the ACHS Board,
v. Release of the User Manual for data collection in the next appropriate six-month period

The process from the commencement of the first survey to the release of the revised User Manual is generally 6-8 months. The cost of the exercise is borne by the ACHS. Nevertheless the process is essential to maintain the interest and co-operation of the HCOs and their clinical staff, in the pursuit of optimal clinical care.

Table A. CI sets with more than 5 revisions

Clinical Indicator Set	Version
Hospital-Wide	13
Maternity	8
Gynaecology	8
Mental Health	7
Anaesthesia & Perioperative Care	7
Emergency Medicine	6
Intensive Care	6
Internal Medicine	6
Ophthalmology	6
Radiology	6
Rehabilitation	6

Table B. 120 actions by 48 HCOs after data review for the Hospital-Wide CI set (2017)

Action	Number
Quality activity	29
Education	33
Policy/Procedure change	37
Staff change	3
Equipment change	10
Other	8

Figure 1. Rate of change after introduction of a CI

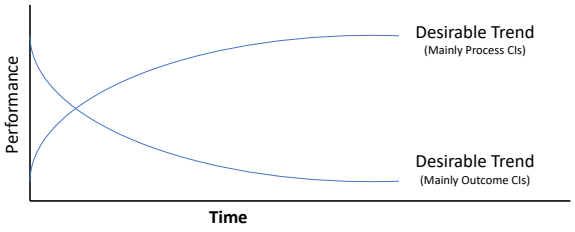
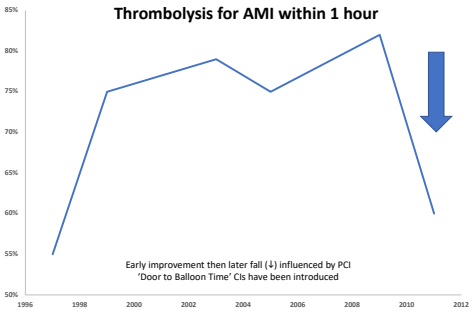


Figure 2. Rate deteriorated after initial improvement



Early improvement then later fall influenced by PCI 'Door to Balloon Time' CIs have been introduced.

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THE CLINICAL INDICATOR PROGRAM: TRENDS AND VARIATIONS

Revealing the potential to improve performance

Within an individual facility, fluctuations in performance compared to the overall performance of the submitting HCOs may focus attention on areas for further investigation.

From a health system perspective, the goal would be to see an overall trend in the desired direction. For the majority of CIs which are process-based, a decrease in variation between the best performing HCOs and the remainder would demonstrate improvement across the system.

Using trends and variation from a systems perspective

The *Australasian Clinical Indicator Report* shows the trends in the rates for each CI (if four or more years of data are available) and three measures of the variation in rates between HCOs. The variations in clinical practice are quantified by the differences between the 20th and 80th centiles, the differences between the strata, and the rates for the HCOs that are outliers.
The report also estimates the potential improvement if:

- the mean rate was shifted to the better centile rate,
- the mean rate was shifted to the best stratum rate, and
- outlier HCOs with less desirable rates were to shift their rate to the mean rate.

This is calculated for each year and is reported using tables and graphs. The text that summarises the results is divided into:

- a summary of the trends in the mean rates and centiles,
- a table of the differences in the strata rates if they are statistically significant, and
- the number of outlier HCOs.

To view the results in full and for more information on the methodology used in this report, refer to the documentation available on the ACHS website (**www.achs.org.au/publications-resources/australasian-clinical-indicator-report/**) located with this summary report.

Clinical Indicator trends 2012-2019

Of the 324 CIs in 2019, 313 are rate-based CIs, whereby data were collected for all but 9 of these CIs. Of the 304 CIs collected in 2019, 294 had a desirable direction specified (high or low rates indicating better care). Trends could be analysed for 197 of the rate-based CIs. The CIs were not analysed for trends if there were less than four years of data, no desirable direction specified or less than five HCOs reporting. Of the 20 sets, 19 had CIs that were tested for trend. Of these, there were 15 CI sets which had more CIs moving in the desirable direction than in the undesirable direction. There were eight CI sets that had an improvement in at least two-thirds of all trended CIs. They were Anaesthesia and Perioperative Care, Day Patient, Emergency Medicine, Gynaecology, Hospital in the Home, Hospital-Wide, Infection Control and Intensive Care.

Since the trend in CIs can be due to a changing mix of contributing HCOs, the CIs were tested again to determine whether the trend remained statistically significant after allowing for changes in the HCOs submitting data. Of those 114 statistically significant trends in the desirable direction, 59 remained significant after allowing for changes in the HCOs submitting, and of those 47 CIs whose trends were deteriorating, 15 remained significant. There were 36 CIs that showed no statistically significant trend. The trend results are summarised in ***Table 5***.

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Table 5: Summary of the trends by CI set: CIs that have statistically significant ($p<0.05$) trends in the desirable or undesirable direction

Clinical Indicator Set	Number of CIs*	Number analysed†	Desirable trend‡	Undesirable trend‡	No Trend
Anaesthesia and Perioperative Care	18	16	10 (4)	3 (0)	3
Day Patient	14	9	8 (2)	1 (1)	0
Emergency Medicine	21	14	6 (4)	5 (1)	3
Gastrointestinal Endoscopy	11	7	2 (2)	0 (0)	5
Gynaecology	8	8	6 (5)	0 (0)	2
Hospital in the Home	9	5	4 (2)	0 (0)	1
Hospital-Wide	26	15	9 (8)	3 (0)	3
Infection Control	26	20	15 (7)	2 (1)	3
Intensive Care	15	14	10 (2)	1 (0)	3
Internal Medicine	18	6	4 (2)	1 (1)	1
Maternity	20	16	6 (5)	7 (6)	3
Medication Safety	20	13	7 (2)	5 (1)	1
Mental Health	27	14	4 (0)	6 (2)	4
Ophthalmology	17	7	4 (4)	2 (0)	1
Oral Health	9	5	4 (3)	1 (0)	0
Paediatrics	14	4	2 (1)	1 (0)	1
Pathology	16	16	6 (1)	8 (2)	2
Radiation Oncology	9	2	1 (1)	1 (0)	0
Radiology	9	0	-	-	-
Rehabilitation Medicine	6	6	6 (4)	0 (0)	0
Total	313	197	114 (59)	47 (15)	36
Percent of tested		100%	58% (30%)	24% (8%)	18%

* Includes only rate-based CIs where the desired rate is specified as either high or low.
† Trends are not reported for CIs with less than four years of data, or fewer than five HCOs reporting, and only rate-based indicators with desirable rate High (H) or Low (L) were tested.
‡ The number in brackets is the number of CIs that had statistically significant trends after allowing for changes in the HCOs contributing the data.

Variation in Clinical Indicator rates

Calculating relative risk from the centiles

Given that HCOs may be large or small, there is a need to control for the differences in the random variations or confidence intervals for each HCO. To this end, 'shrunken rates' are used. The standard deviations of these 'shrunken rates' could be presented as a measure of variation between HCOs. These distributions are not symmetrical so the 20th and 80th centiles are reported. The region between these centiles contains the 'shrunken rates' for 60% of HCOs and the difference between the 20th and 80th centiles is approximately twice the standard deviation of the rates.

A measure that can be used from the centiles is the relative risk (RR) of having an event when the poorer centile applies compared to when the better centile applies. The relative risk is used to identify CIs where there is large systematic variation in rates. If the better rate is the 20th centile, then the RR is the ratio of the 80th centile to the 20th centile rates, R (80) and R (20). The formula is as follows:

When the desired level is low:

R(20) is the better rate of undesirable events (rates are usually less than 0.5).

$$\mathbf{RR} = \frac{R(80)}{R(20)}$$

When the desired level is high:

1-R(80) is the better rate of non-occurring events.

$$\mathbf{RR} = \frac{1\text{-}R(20)}{1\text{-}R(80)}$$

The RR will be calculated for CIs where there were 20 or more submissions and potential gains of at least five events. The RR was thus calculated for 174 CIs.

THE CLINICAL INDICATOR PROGRAM: TRENDS AND VARIATIONS

While the formulae may appear somewhat daunting, the interpretation is clear. Greater values in the RR indicate greater systematic variation in rates for a given CI, and it may be appropriate to determine the causes of these variations.

Table 6 shows that there are 66 CIs (39% of those tested) with high RR (≥10). These CIs occur in 15 of the 18 CI sets tested, and six CI sets with more than half the CIs having high RR.

Table 6: Relative Risk (RR) for CIs in each CI set – a high relative risk reveals high systematic variation between HCOs

Clinical Indicter Set	Number of CIs	CIs tested*	RR: 1 to <2	RR: 2 to <10	RR: ≥10	% ≥10
Anaesthesia and Perioperative Care	18	11	-	4	7	64%
Day Patient	12	12	-	4	8	67%
Emergency Medicine	22	12	3	8	1	8%
Gastrointestinal Endoscopy	9	6	1	5	-	0%
Gynaecology	8	6	1	5	-	0%
Hospital in the Home	9	2	-	1	1	50%
Hospital-Wide	19	14	3	6	5	36%
Infection Control	26	20	3	6	11	55%
Intensive Care	16	8	-	2	6	75%
Internal Medicine	18	-	-	-	-	0%
Maternity	20	17	13	3	1	6%
Medication Safety	19	7	-	4	3	43%
Mental Health	30	19	-	10	9	47%
Ophthalmology	17	8	1	5	2	25%
Oral Health	9	9	5	4	-	0%
Paediatrics	14	3	-	1	2	67%
Pathology	17	10	-	6	4	40%
Radiation Oncology	9	-	-	-	-	-
Radiology	15	4	-	2	2	50%
Rehabilitation Medicine	6	6	-	2	4	67%
Total	**313**	**174**	**30**	**78**	**66**	**38%**
Percent of tested			**17%**	**44%**	**39%**	

* The relative risk can only be calculated where the centiles are not zero or 100%. CIs with 20 or more submissions and where the potential gains of the CI are at least five are included in this analysis. Only rate-based indicators with desirable rate High (H) or Low (L) were tested.

Clinical Indicators with significant variations between strata

For each CI, the detailed results identify whether there were statistically different mean rates for 2019 between the three strata: Australian states and territories/NZ, public/private and metropolitan/non-metropolitan. This section summarises those results, by identifying the stratum that explains most of the variation in 2019. ***Table 7*** shows the number of CIs that were analysed, and how many had significant stratum differences by CI set.

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Table 7: Number of CIs whose mean rates were statistically significantly different by Australian states and territories/New Zealand, public/private, metropolitan/non-metropolitan in 2019

Clinical Indicator Set	Number of CIs	CIs tested#	State / NZ	Public / private	Metropolitan / non-metropolitan	Any Stratum
Anaesthesia and Perioperative Care	18	11	2	4	2	5
Day Patient	12	12	1	5	0	6
Emergency Medicine	22	10	8	1	0	9
Gastrointestinal Endoscopy	9	8	3	2	0	2
Gynaecology	8	6	1	1	1	3
Hospital in the Home	9	3	2	0	2	3
Hospital-Wide	19	15	6	3	1	5
Infection Control	26	23	4	1	1	4
Intensive Care	16	10	6	7	2	8
Internal Medicine	18	0	0	0	0	0
Maternity	20	18	11	9	0	12
Medication Safety	19	6	5	4	3	5
Mental Health	30	17	9	4	0	7
Ophthalmology	17	8	5	2	1	6
Oral Health	9	9	7	0	1	7
Paediatrics	14	3	2	2	0	3
Pathology	17	9	5	0	1	6
Radiation Oncology	9	0	0	0	0	0
Radiology	15	3	3	0	0	2
Rehabilitation Medicine	6	6	0	4	0	4
Total	**313**	**177**	**80**	**49**	**15**	**97**
Percent of tested			**45%**	**28%**	**8%**	**55%**

#At least ten HCOs must submit for the CI to be tested. Only rate-based indicators with desirable rate High (H) or Low (L) were tested.

In 2019 there were 80 CIs with significant differences in mean rates between states and territories of Australia/New Zealand, notably in Emergency Medicine (8), Hospital-Wide (6), Maternity (11), Mental Health (9), Oral Health (7) and Pathology (5).

Significant differences between the mean rates for the public and private strata were found in 49 CIs, notably in Day Patient (5), Intensive Care (7) and Maternity (9). There were 15 CIs with significant differences between metropolitan and non-metropolitan participants.

Outliers

Clinical Indicators and HCOs with significantly different rates

This section uses the data for 2019 to identify desirable and less desirable rates. If a shrunken rate was more than three standard errors from the overall rate, this was considered to be statistically significant. These rates are called outliers.

The reporting of HCOs that are outliers is more relevant to the individual HCOs. Participating HCOs receive reports identifying those areas where their rates are statistically significantly different from the overall rate. Outliers are summarised in this report to show that they occur in all sets, and in sufficiently large numbers to suggest that all HCOs would benefit from reviewing their results.

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Of the 304 rate-based CIs (with rates that are not 0 or 100%) and 25,878 six-monthly data submissions, those CIs with no preferred direction or CIs that had less than 20 six-monthly data submissions in 2019 were excluded. There remained 192 CIs and 23,925 individual data submissions.

For the 192 rate-based CIs that had a desirable direction and more than 20 six-monthly data submissions, a summary of the number of outlier data submissions is given in ***Table 8***. The proportion of data submissions that were outliers with a desirable direction was 13.8%, the proportion with less desirable rates was 10.6% and the remaining 75.7% of submissions were not outliers in either direction. These proportions varied between the specialities.

In 2019, six sets had more than 15% of submissions classified as outliers in the undesirable direction. They were Emergency Medicine (21%), Intensive Care (17%), Mental Health (19%), Pathology (31%), Hospital in the Home (25%) and Rehabilitation Medicine (16%). Eight CI sets, including the first four just mentioned sets, had a greater number of six-monthly data submissions in the favourable direction than in the unfavourable direction.

Table 8: Number of CIs, HCOs reporting and data submissions that were outliers in 2019

Clinical Indicator Set	Number of CIs	CIs tested#	HCOs	Data submissions	Undesirable	Desirable*
Anaesthesia and Perioperative Care	18	11	229	1,781	12%	23%
Day Patient	12	12	282	2,891	11%	18%
Emergency Medicine	22	12	99	1,034	21%	45%
Gastrointestinal Endoscopy	8	8	84	745	4%	0%
Gynaecology	8	6	56	299	5%	1%
Hospital in the Home	10	2	19	53	25%	8%
Hospital-Wide	18	15	416	4,630	9%	12%
Infection Control	26	25	339	2,832	7%	5%
Intensive Care	15	9	95	971	17%	31%
Internal Medicine	20	-	-	-	-	-
Maternity	18	18	135	3,377	6%	6%
Medication Safety	19	7	266	845	11%	9%
Mental Health	29	22	96	1,170	19%	26%
Ophthalmology	17	12	58	605	5%	6%
Oral Health	10	9	85	969	7%	4%
Paediatrics	13	3	34	126	10%	13%
Pathology	16	10	24	293	31%	44%
Radiation Oncology	9	-	-	-	-	-
Radiology	17	5	23	139	12%	2%
Rehabilitation Medicine	6	6	124	1,165	16%	9%
Total	**311**	**192**	**633**	**23,925**	**10.6%**	**13.8%**

#CIs with less than 20 six-monthly data submissions were excluded. Only rate-based indicators with desirable rate High (H) or Low (L) were tested.
*Values I bold when there were a greater number of six-monthly data submissions in the favourable direction than in the unfavourable direction.

Those CIs with a high proportion of outliers were usually associated with process measures such as access block in emergency departments and intensive care units, delays in reporting test results in pathology, and documentation and processes in mental health and medication safety.

Each of the 192 CIs tested were categorised according to whether there were:

- no outlier six-monthly data submissions
- at least one outlier with undesirable rates, none with desirable rates
- at least one outlier with desirable rates, none with undesirable rates
- outliers with both desirable and undesirable rates

Table 9 reveals that 16 of the 192 CIs had no six-monthly data submissions that were outliers and 129 CIs included both undesirable and desirable six-monthly data submissions as outliers.

Table 9: Number of CIs that had six-monthly data submissions that were outliers in 2019*

			Data submissions to CIs		
Outlier category	Number of CIs	Per cent of CIs	Range	Median	Mean
No outliers	16	8.3%	20-290	67.5	85
Undesirable rates only	46	24.0%	20-688	94	137
Desirable rates only	1	0.5%	24-24	24	24
Outliers – undesirable and desirable rates	129	67.2%	20-721	86	126
Total	**192**	**100%**	**20-721**	**86**	**125**

*CIs with no less than 20 six-monthly data submissions were excluded. Only rate-based indicators with desirable rate High (H) or Low (L) were tested.

Can outlier rates be used to rank HCOs?

This has been suggested as a way to improve quality, even though the research literature, in general, does not support the use of 'league tables'.

For the 16 CIs with no outliers, the variation between HCOs was not statistically significant. This means that any ranking would be equivalent to that obtained from tossing a coin or dice. The remaining 176 CIs have six-monthly data submissions that are outliers in the undesirable direction (with or without other outlier submissions in the desirable direction – ***Table 9***).

Each of the 633 HCOs that submitted one or more of the 192 CIs tested were categorised according to whether there were:

- no outlier data submissions
- at least one outlier with undesirable rates, none with desirable rates
- at least one outlier with desirable rates, none with undesirable rates
- outliers with both desirable and undesirable rates

The analyses of the outlier rates by HCO reveal that the desirable rates do not cluster into HCOs that have better performance, but that both desirable and undesirable rates occur in 54.7% of HCOs (***Table 10***). Furthermore, the table shows that HCOs that report fewer CIs have less likelihood of having both desirable and undesirable rates compared to those reporting a greater number of CIs.

From ***Table 10,*** it can be seen that of the 633 HCOs considered, 346 (54.7%) HCOs have both desirable and undesirable rates whereas only 97 (15.3%) HCOs have outliers only in the undesirable direction, a total of 440 HCOs (70%) having at least one outlier in the undesirable direction.

Table 10: Number of HCOs that had CIs that were outliers in 2019*

			Number of CIs			HCO data submissions		
Outlier category	Number of HCOs	Per cent of HCOs	Range	Median	Mean	Range	Median	Mean
No outliers	96	15.2%	1 – 18	3	5	2 – 35	6	9
Undesirable rates only	94	14.8%	1 – 37	9	10	1 – 73	15	17
Desirable rates only	97	15.3%	2 – 34	13	15	3 – 64	25	28
Outliers – undesirable and desirable rates	346	54.7%	3 – 94	26.5	30	3 – 176	46	54
Total	**633**	**100%**	**1 – 94**	**15**	**21**	**1 – 176**	**26**	**38**

*CIs with less than 20 six-monthly data submissions were excluded. Only rate-based indicators with desirable rate High (H) or Low (L) were tested. Hence some of the contributing HCOs are represented in the above table.

The results from ***Table 8*** and ***Table 10*** show that:

- 13.8% of submissions are in the desirable direction and 10.6% in the undesirable direction. Thus the majority of six-monthly data submissions (the remaining 75.7%) are not statistically different from the average (***Table 8***),
- 70% of the 633 HCOs have some clinical areas with rates that are outliers in the undesirable direction (***Table 10***).

THIS SUGGESTS THAT CLINICAL INDICATORS HAVE A GREATER ROLE IN IDENTIFYING AREAS FOR REVIEW, RATHER THAN FOR RANKING PERFORMANCE.

SUMMARY OF RESULTS

A SUMMARY OF THE MAIN OBSERVATIONS FOR EACH SET OF CIs FOLLOWS.

Symbols used in each Clinical Indicator Session

Rates Deteriorating

Rates Improving

Increasing/Decreasing (Desirable rate non-specified)

GENERAL COMMENTS

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Although clinical indicators have been used in hospital care for many years, clinical indicator development for perioperative care is an emerging science. Haller et al[1] in 2009 described the relative paucity of high-level evidence underpinning available indicators in anaesthesia practice. More recently, Chazapis et al[2] in a systematic review have reflected on the continued widespread lack of evidence ascribed to indicators in use, and the lack of clear patient-centred metrics in available indicator sets for perioperative care.

In order to enable performance assessment and benchmarking, and to support improvement in outcomes which are important to patients, ideal clinical indicators for perioperative care should be well defined and easy to collect, evidence-based, specific, sensitive, valid and reliable[3]. Perioperative care relates to a heterogeneous range of activities, from simple and often process driven (e.g. many day surgery and low risk procedures) to complex and highly specialised. Mahajan et al[4] have described the challenges in distinguishing indicators which may have been useful for "factory-like processes", and the increasing need for other measures which might be more suitable for "self-organized based complex adaptive systems". For more complex improvement processes, the concept of traditional unidimensional clinical indicators may be obsolete, and we are likely to need more sophisticated measures of institutional culture and leadership, and hence ability to learn, transform and improve.

The Australasian Clinical Indicator Report 2012-2019 reflects a time during which several indicators reflective of team performance (rather than of individual anaesthetists) were introduced. The working parties for the ACHS Anaesthesia and Perioperative Care Clinical Indicator set (like many other working parties world-wide) have consistently struggled to identify clinical indicators which meet the criteria outlined above (particularly the requirement to be evidence-based), and also to meet the important criterion of patient-centredness. Some indicators (such as those reflecting pre-anaesthesia consultation CI 1.1, anaesthesia record compliance with ANZCA requirements CI 2.2, and unplanned ICU admission CI 4.1), while widely subscribed, do not appear to have significant scope to support improvement in performance, despite having high face validity. Other indicators which have not been embraced by clinicians or organisations, despite aligning with ANZCA policy (such as "Smoking cessation advised in pre-anaesthesia consultation" CI 1.2) have subsequently been deleted, as clearly not meeting the needs of users.

Increasingly, it is hoped that Australian patients receiving perioperative care are supported by the availability of a range of clinical (and other) indicators which can enhance both high volume, low complexity care (in order to minimise variation), as well as more complex episodes requiring a self-organisation-based improvement process.

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ANESTHESI AND PERIOPERATIVE CARE

SUMMARY OF RESULTS

In 2019 there were 1,856 submissions from 232 HCOs for 20 CIs. Eighteen were analysed for trend, 11 of which improved, 4 deteriorated and the remainder showed no evidence of trend. In 2019, significant stratum variation was observed in 6 CIs.

Sixteen CIs showed greater systematic variation, with centile gains in excess of 50% of all events. Outlier gains in excess of 25% of all events were observed in 15 CIs. See Table of Indicator Results below.

Table of Indicator Results

Indicator	Aggregate rate %	Best Stratum	Outlier HCOS (%)*	Outlier Gains (%)+	Centile Gains (%)+	Events#	Trend
Preanaesthesia period							
1.1 Preanaesthesia consultation completed by anaesthetist (H)	99.7		5 (12%)	204 (77%)	263 (99%)	265	↑ ✓
1.2 Smoking cessation advised in preanaesthesia consultation (H)	100.0						
Intraoperative period							
2.1 Presence of a trained assistant (H)	94.7	Metropolitan	2 (11%)	3,077 (71%)	4,362 (100%)	4,364	↓ ✗
2.2 Anaesthesia record compliance with ANZCA requirements (H)	99.8		7 (16%)	251 (78%)	316 (99%)	320	↑ ✓
2.3 Time-out procedure: regional anaesthesia (H)	99.1		2 (17%)	100 (79%)	126 (100%)	126	
2.4 Prophylactic anti-emetic administered to patients with history of PONV (H)	65.7		1 (14%)	7 (30%)	20 (87%)	23	↓ ✗
Patient recovery period							
3.1 Relief of respiratory distress in the recovery period (L)	0.0	Private	8 (5%)	99 (32%)	220 (71%)	310	↓ ✓
3.2 PONV treatment in the recovery period (L)	0.8		22 (20%)	2,668 (54%)	4,688 (94%)	4,980	
3.3 Temperature less than 36 degrees Celsius in the recovery period (L)	1.5		23 (18%)	7,900 (68%)	11,520 (99%)	11,649	↑ ✗
3.4 Severe pain not responding to pain protocol in the recovery period (L)	0.33	Private	25 (14%)	1,374 (35%)	3,257 (84%)	3,891	↓ ✓
3.5 Unplanned stay in recovery room longer than 2 hours (L)	1.0		25 (18%)	3,220 (40%)	6,838 (85%)	8,031	↓ ✓

Number of undesirable or non-compliant events
+ % of events accounted for by outlier/centile gains
* % of HCOs that are outliers

ANESTHESIA AND PERIOPERATIVE CARE

Summary of Indicator Results continued

Indicator	Aggregate rate %	Best Stratum	Outlier HCOS (%)*	Outlier Gains (%)+	Centile Gains (%)+	Events#	Trend
Postoperative period							
4.1 Unplanned ICU admission within 24 hours after procedure (L)	0.1		12 (11%)	354 (26%)	1,041 (76%)	1,369	↓ ✓
4.2 Documented patient handover - operating suite to recovery area (H)	99.4	Private	5 (21%)	221 (85%)	259 (99%)	261	↑ ✓
4.3 Documented patient handover - recovery area to ward (H)	94.6		3 (17%)	1,764 (80%)	2,192 (100%)	2,196	↑ ✓
Management of acute pain							
5.1 Pain intensity scores recorded for surgical patients (H)	98.8		2 (22%)	39 (64%)	60 (98%)	61	↑ ✓
5.2 Daily anaesthetist review following postoperative epidural analgesia (H)	100.0					-	↑ ✓
Obstetric anaesthesia care							
6.1 Obstetric patients experiencing post-dural puncture headache (L)	0.7		1 (11%)	15 (22%)	40 (58%)	69	↓ ✓
6.2 Obstetric patients with risks and benefits of analgesia documented (H)	98.1		1 (25%)	55 (73%)	74 (99%)	75	

Number of undesirable or non-compliant events
+ % of events accounted for by outlier/centile gains
* % of HCOs that are outliers

GENERAL COMMENTS

Gabby Moreland
Day Hospitals Association

The Day Patient indicator set collects data from a broad range of health care organisations (HCOs) conducting procedures with a discharge intent of one day. These HCOs can be categorised as public or private, free standing or collocated, single or multi-specialty. In 2019 it was reported that there had been a 12% growth in the number of registered day hospitals in Australia over the previous five years, performing 1.2 million procedures in 2017-2018 alone[1]. More recently there has been a shift towards 23-hour licensing and collaborative, multi-specialty peri-operative care processes allowing more complex procedures to be performed in a Day Patient setting. This is evidenced by the introduction of joint replacement surgery in selected trial facilities.

ACHS, and the broader health community, has recognised the expansion of the Day Patient sector, noting the improved patient outcomes associated with this care delivery model. In 2019, version 6 of the Day Patient indicators were implemented introducing and/or refining three data sets relating to post-procedure care: Indicator 8.2 Departure without an overnight carer; 9.1 Follow up contact within 48 hours; and 9.2 Completeness of follow up instructions form for patients. The area of post-procedure care being closely associated with outcomes of care for day patients.[2]

Across the twelve Day Patient Indicators, over the seven-year reporting period, it was noted that the number of participating HCOs varies markedly by Indicator. Low submission rates for the newly revised or introduced indicators may reflect a need for greater lead time for HCOs to revise their data collection systems. Low submission rates for unchanged indicators may reflect a change in relevance to the sector. Relevance and reasons for variability between and within specific indicators is considered in the periodical working party reviews. The 2018 working party review resulting in the changes noted above for post-procedure care, in addition to the revision of some indicators and the deletion of four others in Version 6.

Of the twelve Day Patient Indicators, eleven showed improvement in 2019 with the trend over time in the desired direction. That is, indicators where a low rate is desirable were trending downward and those with a high desirable rate were trending upwards. When considered in terms of gains at the patient level this is commendable.

The single indicator demonstrating a slight deterioration in trend concerned cancellation of the procedure after arrival due to a pre-existing medical condition (CI 3.1). Theoretically, this points to organisational or administrative processes that have failed to properly identify the suitability of the patient for admission. Alternatively, there is a need to consider, that despite this disruption in time and resources for both the patient and the organisation, the overall benefit to the patient may actually have been positive.

Lastly, review of the initial data collection for the post-procedure care indicators of 8.2, 9.1 and 9.2 demonstrated an excellent low rate for departure without an overnight carer, an appropriately high and excellent rate for completeness of instruction. The ratio of outlier HCOs for follow up contact within 48 hours will be interesting to watch over time as these datasets mature.

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2. Day Patient Version 6 Clinical Indicator Manual, Australian Council on Healthcare standards. 2018, p.5

DAY PATIENT

SUMMARY OF RESULTS

In 2019 there were 2,882 submissions from 280 HCOs for 12 CIs. Nine were analysed for trend, 8 of which improved, 1 deteriorated and the remaining CI showed no evidence of trend. In 2019, significant stratum variation was observed in 5 CIs.

Twelve CIs showed greater systematic variation, with centile gains in excess of 50% of all events. Outlier gains in excess of 25% of all events were observed in 10 CIs. See Table of Indicator Results below.

Table of Indicator Results

Indicator	Aggregate rate %	Best Stratum	Outlier HCOS (%)*	Outlier Gains (%)+	Centile Gains (%)+	Events#	Trend
Preadmission preparation							
1.1 Booked patients assessed before admission (H)	89.2	Private	17 (22%)	13,956 (67%)	20,845 (100%)	20,858	↑ ✓
Procedure non-attendance							
2.1 Booked patients who fail to arrive (L)	0.60		22 (12%)	2,661 (60%)	4,315 (97%)	4,444	↓ ✓
Procedure cancellation							
3.1 Cancellation of the procedure after arrival due to pre-existing medical condition (L)	0.22	Private	29 (14%)	626 (28%)	1,560 (70%)	2,220	↑ ✗
3.2 Cancellation of the procedure after arrival due to an acute medical condition (L)	0.45	Private	33 (16%)	1,865 (52%)	3,167 (89%)	3,575	↓ ✓
Episode of care adverse events							
4.1 Patients who experience an adverse event during care delivery (L)	0.1		11 (9%)	74 (19%)	280 (72%)	388	↓ ✓

Number of undesirable or non-compliant events
+ % of events accounted for by outlier/centile gains
* % of HCOs that are outliers

DAY PATIENT

SUMMARY OF RESULTS

Summary of Indicator Results continued

Indicator	Aggregate rate %	Best Stratum	Outlier HCOS (%)*	Outlier Gains (%)+	Centile Gains (%)+	Events#	Trend
Unplanned return to the operating room							
5.1 Unplanned return to operating room on same day as initial procedure (L)	89.2	Private	17 (22%)	13,956 (67%)	20,845 (100%)	20,858	↓ ✓
Unplanned transfer / admission							
6.1 Unplanned transfer or overnight admission related to procedure (L)	0.68	Private	46 (19%)	3,618 (46%)	7,099 (90%)	7,890	↓ ✓
Discharge							
7.1 Unplanned delayed discharge for clinical reasons greater than 1 hour beyond expected (L)	0.37	Private	15 (12%)	789 (52%)	1,392 (92%)	1,518	↓ ✓
Departure							
8.1 Departure without an escort (L)	0.50		7 (8%)	912 (75%)	1,200 (99%)	1,218	↓ ✓
8.2 Departure without an overnight carer (L)	0.08		3(6%)	49(51%)	85 (88%)	97	
Post-discharge follow-up							
9.1 Follow-up phone call within 7 days (H)	87.7		20 (26%)	10,663 (62%)	17,250 (100%)	17,277	
9.2 Follow-up phone call received by patient or carer within 7 days (H)	99.0		6 (13%)	942 (78%)	1,213 (100%)	1,215	

Number of undesirable or non-compliant events
+ % of events accounted for by outlier/centile gains
* % of HCOs that are outliers

GENERAL COMMENTS

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Area 1 - Waiting Time

This area continues to be the group of clinical indicators with the highest number of records and contributing HCOs. There is a concerning downward trend over the past decade in terms of overall number of contributing HCOs, although overall denominator numbers remain fairly stable. CI 1.1 continues to show a positive trend with Public performing better than Private organisations. Similarly, Category 5 patients (CI 1.5) show a consistently positive trend. There is stable performance for Category 4 (CI 1.4), despite there being 187,000 more patients. The slight downward trend in performance for Category 2 (CI 1.2) and Category 3 (CI 1.3) patients is particularly pronounced in Queensland (for Category 2), and in Western Australia (for Categories 3 and 4). This may be because of the 50,000 more patients allocated to Category 2 and 286,000 more patients allocated to Category 3 in 2019, thus overwhelming HCOs. Victoria continues to perform particularly well for Categories 1 to 4. There is overall stable performance in the past decade for CI 1.6, patients who left the ED after triage without being seen, although the number of HCOs contributing to this data is almost halved compared to the Category data, with most data from NSW.

Area 2 - STEMI Management

Time to balloon opening was limited by the small number of HCOs contributing to these indicators. The ongoing low rate of STEMI patients who received thrombolysis within 30 minutes is a concern (CI 2.1), however this rate has shown signs of improvement in the last 3 years. There is a relatively stable rate of time to balloon opening within 90 minutes (CI 2.2) and an improvement in the rate of time to balloon opening within 60 minutes (CI 2.3), although data has come from only three HCOs.

Area 3 - ED Mental Health Presentations

The results in this area are somewhat limited by the small number of HCOs contributing to this data. Ongoing poor rate of mental health patients being admitted from the ED within four hours is shown and outliers had an extremely poor rate of 9.7 per 100 patients (CI 3.1). The rate of mental health patients being discharged from the ED within four hours deteriorated with outliers having performed half as well (CI 3.2). We are seeing an ongoing very low rate of mental health patients who did not wait following clinical documentation (CI 3.3), a trend that is improving.

Area 4 - Critical Care

There is a consistent low rate of ED time within four hours for ICU admission (CI 4.1). The ongoing low rate of rapid response system call within four hours of admission to the ward from the ED (CI 4.2) is reassuring. No trend data could be established due to the low number of HCOs contributing to these indicators.

Area 5 - Sepsis Management

Similarly, no trend data could be established due to the low number of HCOs contributing to these indicators. However, we see ongoing abysmal (worst ever) performance for CI 5.1, time of antibiotic resistance for paediatric patients within 60 minutes. In 2019 there was no improvement in CI 5.2, time to antibiotic administration for adult patients within 60 minutes compared to 2018, but this rate is almost three times better than for paediatric patients.

EMERGENCY MEDICINE

Area 6 - Discharge Communication

There was relatively high ongoing documented evidence of clinical management plan provided to ongoing care provider (CI 6.1), however the rate in 2018 was better than in 2019. Similarly, there were relatively high ongoing documented evidence of patient-centred discharge information and instructions provided to patient or carer (CI 6.2), with the 2018 rate better than in 2019. These indicators had a small number of submissions as well.

Area 7 - Pain Management

CI 7.1 was the best performing indicator in 2019 with HCOs reporting an excellent rate of documented initial pain assessment at triage. Poor performance for analgesic therapy within 30 minutes for all patients with moderate or severe pain was shown (CI 7.2) and a very low rate of documented pain reassessment within 30 minutes of analgesic therapy (CI 7.3).

Area 8 - Unplanned Re-attendance

CI 8.1 has shown a positive trend with the lowest rate in 2019 of patients who have an unplanned re-attendance to the ED within 48 hours of initial presentation and who require admission.

Characteristics

There was a good split of contribution between metro and non-metro HCOs.

EMERGENCY MEDICINE

Mr Wayne Varndell
Clinical Nurse Consultant at Prince of Wales Hospital Emergency Department
NSW Branch Director and Associate Executive Director for the College of Emergency Nursing Australasia

Within the realm of Waiting Time, patients with undifferentiated illness assigned to ATS Category 2 and Category 3 are not all being seen within the benchmark. While local models of triage practice may include nurse-initiated treatment, ATS Category 2 and 3 can be very unwell and have the potential to deteriorate rapidly[1, 2].

The decreasing trend in the number of patients not waiting to commence care following triage is noted. A factor contributing to this could be enhanced communication both on arrival to the ED and during the triage process, such as the Patient Experience Office[3], and early access to symptom management at the point of access[4].

In 2019, the number of patients receiving thrombolysis within 30 minutes from arrival to the emergency department and time to percutaneous coronary intervention within 60 minutes has increased. Triage decision accuracy of patients presenting with chest pain and streamlined access to interventional services is of great importance to optimise positive patient outcomes.

For many, the emergency department is the main access point to mental health services for patients experiencing mental illness, especially outside business hours. Patients presenting with mental illness continue to experience extended lengths of stay in the emergency department in a highly stimulating environment; potentially resulting in increased acute behavioural disturbances and use of restraint. Solutions to improving timely access to specialised care are urgently needed. Workable evidence-based nurse-led solutions translatable between metropolitan and rural emergency care settings, offer a potentially effective solution[5].

The frequency of pain being assessed documented at triage remains high, with administration of appropriate analgesic therapy within 30 minutes for patients with moderate to severe pain unchanged. While pain management is the responsibility of all healthcare professionals, it is a core role of emergency nursing. However, the use of nurse-initiated analgesia protocols within emergency departments is not consistent[6]; potentially decreasing patient access to timely analgesia.

Sepsis management saw a slight decrease in time to antibiotic administration in adult patients with a rate of 61.3 per 100 patients in 2019. However, time to antibiotics within the paediatric patient cohort has continued to deteriorate with a rate of 28.3 per 100. Sepsis is a significant and time-sensitive emergency. Paediatric patients have less physiological reserve and typically deteriorate more quickly than the adult patient. The first point of risk assessment and prioritisation in the emergency department is the emergency nurse. Current guidelines do not recognise the potential role of emergency nurses within the multidisciplinary team in detecting and responding to paediatric patients with possible sepsis[7]. The results suggest a body of work needs to be urgently undertaken to improve sepsis management in paediatric patients.

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SUMMARY OF RESULTS

In 2019 there were 1,128 submissions from 100 HCOs for 22 CIs. Twelve were analysed for trend, 6 of which improved and 4 deteriorated. In 2019, significant stratum variation was observed in 0 CIs. Ten CIs showed greater systematic variation, with centile gains in excess of 50% of all events. Outlier gains in excess of 25% of all events were observed in 3 CIs.

See Table of Indicator Results below:

Table of Indicator Results

Indicator	Aggregate rate %	Best Stratum	Outlier HCOS (%)*	Outlier Gains (%)+	Centile Gains (%)+	Events#	Trend
Waiting time							
1.1 ATS Category 1 - medically assessed and treated immediately (H)	99.6		5 (5%)	57 (71%)	74 (93%)	80	↑✓
1.2 ATS Category 2 - medically assessed and treated within 10 minutes (H)	75.6		27 (28%)	18,852 (18%)	52,288 (49%)	106,755	↓✗
1.3 ATS Category 3 - medically assessed and treated within 30 minutes (H)	63.2		26 (27%)	90,731 (20%)	285,978 (63%)	450,380	↑✓
1.4 ATS Category 4 - medically assessed and treated within 60 minutes (H)	72.5		28 (29%)	65,033 (21%)	187,062 (61%)	309,148	↑✓
1.5 ATS Category 5 - medically assessed and treated within 120 minutes (H)	90.1		29 (31%)	5,021 (27%)	13,500 (72%)	18,870	↑✓
1.6 Patients who left the ED after triage without being seen (L)	3.5		17 (31%)	13,495 (24%)	35,796 (65%)	55,442	↓✓
ST-segment elevated myocardial infarction (STEMI) management							
2.1 STEMI patients who receive thrombolytic therapy within 30 minutes (H)	48.7				6 (8%)	77	
2.2 Time to balloon opening within 90 minutes (H)	87.2					15	
2.3 Time to balloon opening within 60 minutes (H)	61.5					45	
Emergency department mental health presentations							
3.1 Mental health patients admitted from the ED within 4 hours (H)	28.7		2 (13%)	350 (11%)	1,092 (36%)	3,059	↓✗
3.2 Mental health patients discharged from the ED within 4 hours (H)	51.0		2 (13%)	941 (18%)	3,400 (65%)	5,232	↓✗
3.3 Mental health patients who did not wait following clinical documentation (L)	0.7		2 (17%)	17 (20%)	52 (62%)	84	↓✓

EMERGENCY MEDICINE

Table of Indicator Results continued

Indicator	Aggregate rate %	Best Stratum	Outlier HCOS (%)*	Outlier Gains (%)+	Centile Gains (%)+	Events#	Trend
Critical care							
4.1 ED time within 4 hours for ICU admissions (H)	41.4		2 (14%)	187 (6%)	860 (25%)	3,382	
4.2 Rapid response system call within 4 hours of admission to the ward from the ED (L)	0.3				2 (2%)	127	
Sepsis management							
5.1 Time of antibiotic administration for paediatric patients within 60 minutes (H)	26.7					11	
5.2 Time of antibiotic administration for adult patients within 60 minutes (H)	61.3				1 (0%)	379	
Discharge communication							
6.1 Documented evidence of clinical management plan provided to an ongoing care provider (H)	80.4		1 (11%)	15 (0%)	2,344 (59%)	3,949	
6.2 Documented evidence of patient-centred discharge information and instructions provided to the patient or carer (H)	83.8		2 (22%)	35 (1%)	1,493 (46%)	3,264	
Pain management							
7.1 Documented initial pain assessment at triage (H)	100.0		1 (33%)	2 (33%)	6 (100%)	6	
7.2 Analgesic therapy within 30 minutes for all patients with moderate or severe pain (H)	53.4				30 (24%)	124	
7.3 Documented pain reassessment within 30 minutes of analgesic therapy (H)	21.3					118	
Unplanned re-attendance							
8.1 Patients who have an unplanned re-attendance to the ED within 48 hours of initial presentation and who require admission (L)	1.2		6 (40%)	819 (20%)	2,687 (66%)	4,088	↓✓

Number of undesirable or non-compliant events
+ % of events accounted for by outlier/centile gains
* % of HCOs that are outliers

GENERAL COMMENTS

Associate Professor Stephen Pianko
Gastroenterological Society of Australia

The ACHS clinical Gastrointestinal indicators provide important information about the provision of endoscopic services in Day surgeries and integrated facilities within a member HCO. The report examines six indicators and provides comparative data over the last seven years. To avoid bias between free standing facilities and overnight hospitals only day procedures were included in the analysis. The report provides information about the overall results for each indicator with some overall outlier information. Individual institutions were provided with feedback about their own data, but these are not included in this report. The data was however reviewed by the statistician and if a HCO was an outlier in one indicator they were not consistently outliers in other indicators.

The first indicator assessed was the failure to reach the cecum due to inadequate bowel preparation. This indication was assessed in 111,221 individuals making it a powerful assessment. The adequacy of bowel preparation is an essential requirement for performing high quality diagnostic and therapeutic colonoscopy. Over the last seven years the failure to reach the cecum rate has been steady at around 0.42 per 100 colonoscopies with virtually no fluctuation over this period despite an increase in colonoscopy numbers from approximately 40,000 to 111,000. Unfortunately, no data is provided about the timing and introduction of split bowel preparation in the HCOs as this might have improved this rate. In future, the quality of the bowel preparation should also be included in this or a new indicator. As in previous years, the public hospital patients fared worse than private day surgery/hospital patients (1.15 per 100 cf 0.36 per 100 colonoscopies) which may be due to multiple reasons including patient motivation and education provided by the endoscopist prior to the procedure. Outliers tended to be smaller to mid volume HCOs which may reflect the infrastructure and staff dedication to colonoscopy in the higher volume centres although this is purely conjecture as no data was provided in this regard.

Failure to reach the cecum due to pathology has also remained stable over the seven-year period at 0.33 per 100 colonoscopies. Once again, more outliers with worse performance were seen in the smaller to mid-size centres.

Adverse outcomes associated with colonoscopy and polypectomy have reassuringly continued to decline over the seven-year period. Ongoing endoscopist education and recertification, the introduction of endoscopic clips and potentially the increased use of cold snaring may all play a role in this. The post polypectomy perforation rate has fallen to 0.013 per 100 colonoscopies with polypectomy and this rate is similar to 2018. The perforation rate post colonoscopy without polypectomy is also very low at 0.017 per 100 colonoscopies and essentially the same as post polypectomy rate. No analysis was provided for public versus private but the overall numbers are so small this subgroup analysis may not be relevant. In future it would be interesting to assess complication rates versus experience of endoscopist.

GASTROINTESTINAL ENDOSCOPY

Post polypectomy bleeding was limited to the time frame of post colonoscopy until 24 hours. Delayed bleeding was excluded and intra-procedure bleeding that was controlled was excluded. Excluding delayed bleeding creates a potential failure of the indicator but it is difficult to collect accurate data as patients do not always represent to site of original colonoscopy. The post polypectomy bleeding rate has also continued to fall over the seven-year period and now sits at 0.047 per 100 colonoscopies which is very respectable. Once again improvements in the post polypectomy bleeding rates may be influenced by education, clips and the introduction of cold snaring for smaller polyps.

Adenoma detection rate[1] was assessed for the first time as a clinical indicator. This important indicator is now one of the hallmarks of quality colonoscopy and the basis of endoscopist recertification. A minimum standard of 25% adenoma detection in over 50-year old individuals is required for accreditation in Australia. The adenoma detection rate was 41% in the report which is excellent but unfortunately the denominator is only 41,472 compared with the failure to reach the cecum denominator of 111,000. This raises the possibility of reporter bias in that the better endoscopists/HCOs may have been more likely to report their data.

Oesophageal perforation tends to fluctuate through a small range over the seven years but remains low in 2019 at 0.094 per 100 dilatations which is certainly acceptable.

Aspiration post endoscopy is one of the most serious endoscopic complications. Interestingly, unlike the other adverse outcomes aspiration rates have increased slowly over the seven years from 0.025 to 0.039 per 100 patients. The reasons for this are not obvious from the report but the increased use of propofol and the increasing BMI of the patients need to be assessed given the importance of this adverse outcome.

The final indicator assessed was the use of reversal agents in endoscopy. This was the first time this was assessed and was at a rate of 0.03 per 100 patients and whilst low may reflect the persistent use of fentanyl or midazolam in endoscopy rather than pure propofol anaesthesia. Perhaps this needs to be evaluated and may be a practice that should be reconsidered.

Overall despite some potential flaws in data collection for certain indicators the report demonstrates a high quality of endoscopy in the participating HCOs. Perhaps the most important areas for future improvement relate to assessing the benefits of split bowel preps[2] and the correlation of adenoma detection rate with withdrawal times[3] and endoscopist experience and ensuring a complete data set for adenoma detection. The difference between the public and private sector with respect to the bowel preparation needs to be reviewed and improved if possible, in the public sector. The slow and small increase in endoscopy associated aspiration warrants further assessment to determine whether anaesthetists were administering the anaesthetic and whether any particular type of anaesthetic may be involved. For most of the colonoscopy associated adverse outcomes the HCO's appear to have reached an excellent performance level.

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GASTROINTESTINAL ENDOSCOPY

SUMMARY OF RESULTS

In 2019 there were 800 submissions from 85 HCOs for 9 CIs. Eight were analysed for trend, 3 of which improved, 0 deteriorated and the remainder showed no evidence of trend. In 2019, significant stratum variation was observed in 3 CIs. Six CIs showed greater systematic variation, with centile gains in excess of 50% of all events. Outlier gains in excess of 25% of all events were observed in 4 CIs. See Table of Indicator Results below.

Table of Indicator Results

Indicator	Aggregate rate %	Best Stratum	Outlier HCOS (%)*	Outlier Gains (%)+	Centile Gains (%)+	Events#	Trend
Failure to reach caecum							
1.1 Failure to reach caecum due to inadequate bowel preparation (L)	0.42	Private	12 (18%)	104 (22%)	274 (58%)	469	
1.2 Failure to reach caecum due to diseased colon (L)	0.33		9 (15%)	92 (28%)	246 (75%)	329	
Adverse outcomes - colonoscopy / polypectomy							
2.1 Treatment for possible perforation post-polypectomy (L)	0.013				4 (40%)	10	↓✓
2.2 Treatment for possible perforation post-colonoscopy (L)	0.017		2 (3%)	3 (25%)	7 (58%)	12	↓✓
2.3 Post-polypectomy haemorrhage (L)	0.047		1 (2%)	2 (6%)	12 (39%)	31	↓✓
Adenoma detection							
3.1 Adenoma detection rate (N)	41.0						
Oesophageal dilatation - perforation							
4.1 Oesophageal dilatation - possible perforation (L)	0.09	NSW					
Aspiration following GI endoscopy							
5.1 Aspiration following endoscopy (L)	0.039		1 (2%)	11 (28%)	26 (67%)	39	
Sedation in GI endoscopy							
6.1 Sedation in GI endoscopy (L)	0.030		2 (7%)	4 (36%)	7 (64%)	11	

Number of undesirable or non-compliant events
+ % of events accounted for by outlier/centile gains
* % of HCOs that are outliers

GENERAL COMMENTS

Dr Martin Ritossa
Royal Australian and New Zealand College of Obstetricians and Gynaecologists
Chair, ACHS Gynaecology Working Party Version 7

Dr Vijay Roach
President, Royal Australian and New Zealand College of Obstetricians and Gynaecologists

Thank you to the HCOs that contributed to Gynaecological indicators in 2019. Participation continues to remain strong and it was good to see the greatest number of units choosing to participate in 2.1 Gynaecological surgery, injury to a major viscus which shows a strong focus on surgical quality.

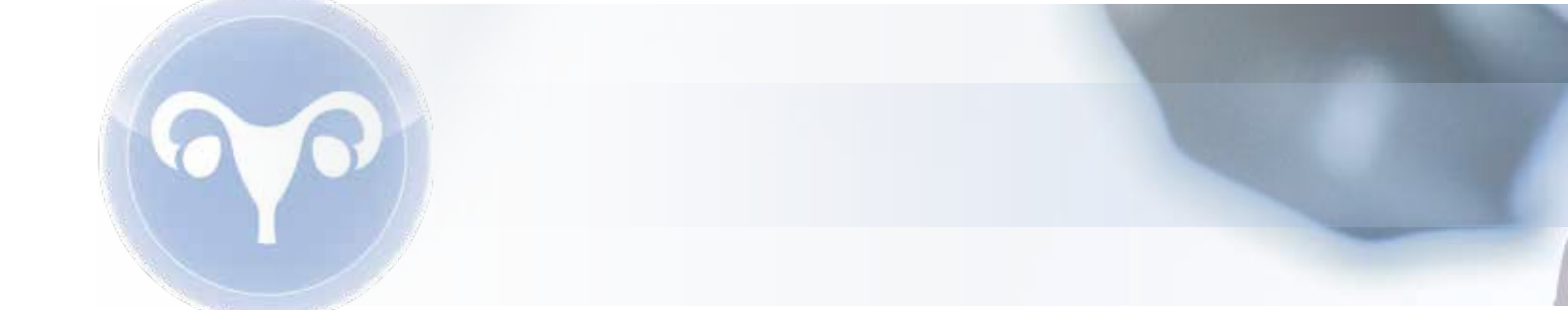
Unplanned blood transfusion rates following surgery for benign conditions continue to fall, with a rate of 0.57 per 100 patients being the second lowest rate recorded. Unplanned blood transfusions following malignant disease remains stable at a rate of 6.5 per 100 cases, lower than last year. The outlier HCO rate for unplanned blood transfusion in benign disease was 3 times that of the average, suggesting room for improvement at some institutions. Whether this is due to surgical bleeding rates or transfusion protocols cannot be determined from this data but outlier HCO's should review their policies and procedures regarding blood transfusions.

Injury to a major viscus at gynaecology continues to trend down after a worrying spike in 2015/16. The rate of 0.18 per 100 cases suggests a high standard of surgical care in the participating units. One confounding factor may be the denominator which includes all gynaecological procedures. Given the decreasing hysterectomy rate and the increase of safer surgical alternatives such as endometrial ablation, the falling rate may be due to procedure selection rather than surgical technique. Regardless, it is a good outcome for our patients. There were six outlier HCOs whose rate were 1.5 per 100 patients, eight times the average rate. When incidents occur once or twice a year it is difficult to tell the difference between a cluster of cases and a worrying trend. Units should continue to regard injury to a major viscus as a significant event and review each case for educational and quality purposes.

Laparoscopic management of ectopic pregnancy is a marker for the uptake of laparoscopic surgery in the community and more importantly good quality care. Overall rates remain high and are trending up with the rate of 91.4 per 100 patients being the highest recorded. There were two outlier HCOs with a rate of 67.9 per 100 patients which has deteriorated. This may be due to patient complexity but also may indicate the skills of the surgeons or the equipment available. Having a team and equipment available to manage an ectopic pregnancy laparoscopically, should be considered essential for any specialist run unit.

Rates of thomboprophylaxis for major surgery remains high and continues to rise with a rate 99.4%. This is an outstanding result however, it is disappointing that only seven HCOs participated in this indicator. It is most likely that the reason for this is the difficulty in retrieving the data in paper-based system.

GYNAECOLOGY



The rate of mesh repair for pelvic organ prolapse, which includes trans-abdominal mesh for prolapse repair, has fallen in 2019 to 4.1 per 100 patients. This is a procedure that should only be performed for very specific indications in specialised units by appropriately credentialed surgeons. Of note all trans-vaginal mesh products for the repair of prolapse have been removed from the market. Even though abdominal placement of mesh is a recognised procedure for recurrent prolapse, we would expect this procedure to be performed in a small number of patients. Any outlier HCOs should undertake a review of procedures and policies in regard to mesh procedures for prolapse. It should be noted that urogynaecology subspecialty units would be expected to have a higher rate due to a referral bias.

The indicators would suggest that hysterectomy rates are continuing to fall and although the rate of 21.2 per 100 was higher than last year it is the second lowest recorded. Non-metropolitan hospitals had a lower rate than metropolitan hospitals, which has not always been the case. There were two outlier HCOs with twice the rate of hysterectomy resulting in potentially 40 more women undergoing a hysterectomy than required. It is difficult to say whether this is a true difference or whether the variations are due to patient demographics. Overall the decreasing rate show an increased uptake in conservative treatments for menorrhagia.

In summary all the indicators are trending in the correct direction which is a credit to these indicators and all the participating HCOs.

GYNAECOLOGY

SUMMARY OF RESULTS

In 2019 there were 328 submissions from 56 HCOs for 8 CIs. Seven were analysed for trend, 6 of which improved and the remainder showed no evidence of trend. In 2019, significant stratum variation was observed in 2 CIs. Four CIs showed greater systematic variation, with centile gains in excess of 50% of all events. Outlier gains in excess of 25% of all events were observed in 1 CI. See Table of Indicator Results below.

Table of Indicator Results

Indicator	Aggregate rate %	Best Stratum	Outlier HCOS (%)*	Outlier Gains (%)+	Centile Gains (%)+	Events#	Trend
Blood transfusion							
1.1 Gynaecological surgery for benign disease - unplanned intraoperative or postoperative blood transfusion (L)	0.57	Private	2 (5%)	18 (8%)	160 (75%)	212	↓ ✓
1.2 Gynaecological surgery for malignant disease - unplanned intraoperative or postoperative blood transfusion (L)	6.5		1 (6%)	8 (9%)	21 (25%)	85	
Injury to a major viscus							
2.1 Gynaecological surgery - injury to a major viscus with repair (L)	0.18		5 (9%)	30 (24%)	89 (72%)	124	↓ ✓
Laparoscopic management of an ectopic pregnancy							
3.1 Ectopic pregnancy managed laparoscopically (H)	91.4	NSW	2(7%)	9(17%)	34(63%)	54	↑ ✓
Thromboprophylaxis for major gynaecological surgery							
4.1 Thromboprophylaxis for major gynaecological surgery (H)	99.4					6	↑ ✓
4.2 Re-admission for venous thromboembolism within 28 days (L)	0.041					1	
Mesh repair							
5.1 Use of mesh repair for pelvic organ prolapse (L)	4.0		2 (15%)	9 (33%)	22 (81%)	27	↓ ✓
Menorrhagia							
6.1 Surgical intervention for menorrhagia (L)	21.2		2 (15%)	40 (10%)	111 (29%)	389	↓ ✓

Number of undesirable or non-compliant events
+ % of events accounted for by outlier/centile gains
* % of HCOs that are outliers

GENERAL COMMENTS

Dr Daryl Kroschel
National Medical Director Silver Chain Group
Vice President Hospital in the Home Society of Australasia

In the context of the COVID-19 global pandemic, there has been renewed interest in the Hospital in the Home model of care. An international webinar was held in 2020 enabling select attendees of the inaugural World Hospital at Home Congress to share their experience of managing patients at home within COVID-19 hotspots. This demonstrates the global nature of this emerging field and that it is agile, enabling a rapid expansion of the capacity of the health system. This apparent global renaissance in Hospital in the Home is built on a strong foundation, and in the Australian context demonstrates two decades of experience and safe care as monitored by ACHS Clinical Indicators (CIs).

The 2019 data set is compiled from version 5 of the Hospital in the Home Indicators, permitting four years of data on which to draw comparison and trends for a number of clinical indicators. In 2019 there were 117 submissions from 20 Health Care Organisations (HCOs) for nine CIs, reflecting a good split of both metropolitan (55%) and non-metro (45%) representation.

In relation to the domain of patient safety, selection, communication and care co-ordination, the most notable change in trend was in relation to CI 1.5 Unscheduled clinical assessment - adult/paediatric patient with a rate of 0.09 per 100 bed days, most probably due to the significant reduction in the HCO outlier rate relative to previous two years, with a comparable number of HCOs contributing data for this CI.

As a marker of quality, centred on service interruption, CI 2.1 – Unplanned return to hospital – adult/paediatric remains one of the most consistently reported measures of outcome with 31 records from 19 HCOs. The annual rate of 0.50 per 100 bed days is significantly reduced on previous years and results in a significant reduction in trend even after allowing for the changing composition of HCOs contributing to the data set over the period. Whilst associated with a lower number of reporting HCOs, indicator 2.3 – unplanned return to hospital within 24 hours – adult/paediatric patient, also showed a significant reduction in rate of 0.057 per 100 bed days resulting in a significant diminution of the trend rate.

Due to the relatively small value of the numerator associated with CI 3.1 unexpected deaths during HITH admission – adult/paediatric patient, it is not possible to make any specific inferences on the outcome measure of 0.011 unexpected deaths per 100 bed days. The reduction in the rate of unscheduled clinical assessments and unplanned return to hospital rates does not imply an inverse correlation with the increased rate of unexpected deaths, merely that the trends are largely dependent on the case mix and age of patients.

HOSPITAL IN THE HOME

It is worth noting that only ten HCOs have contributed data for this CI over the past three years; other contributing HCOs are encouraged to contribute data to CI 3.1 so that it may be observed closely across a broader patient population. Historically it has been shown that mortality outcomes are not significantly different between HITH and hospital-based care[1] and that mortality rates within HITH services is low[2,3]. Clearly in the event of patient death within a HITH program, the service is required to comply with the broader organisational process for reviewing the case.

Forced by global events and enabled by technology, the model of Hospital in the Home will be reinforced as an important component of the health eco-system. International collaboration and consistent definitions of patient complexity and acuity will in time allow international benchmarking; for now the ACHS Clinical Indicators set the standard for measures of safe and effective care in the Australian context.

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HOSPITAL IN THE HOME

SUMMARY OF RESULTS

In 2019 there were 117 submissions from 20 HCOs for 9 CIs. None were analysed for trend. In 2019, significant stratum variation was observed in 4 CIs. Seven CIs showed greater systematic variation, with centile gains in excess of 50% of all events. Outlier gains in excess of 25% of all events were observed in 3 CIs. See Table of Indicator Results below.

Table of Indicator Results

Indicator	Aggregate rate %	Best Stratum	Outlier HCOS (%)*	Outlier Gains (%)+	Centile Gains (%)+	Events#	Trend
Patient safety, selection, communication and care co-ordination							
1.1 Unexpected clinical telephone calls - adult/ paediatric patient (N)	0.71						↓
1.2 Unexpected clinical telephone calls - neonatal patient (N)	No data since 2017						
1.3 Unexpected administrative telephone calls - adult/paediatric patient (L)	0.12		3 (43%)	21 (81%)	25 (96%)	26	
1.4 Unexpected administrative telephone calls - neonatal patient (L)	No data since 2017						
1.5 Unscheduled clinical assessment - adult/ paediatric patient (L)	0.090	VIC	2 (18%)	8 (22%)	11 (31%)	36	↓✓
Service interruption							
2.1 Unplanned return to hospital - adult/ paediatric patient (L)	0.50	Metropolitan	9 (47%)	131 (31%)	304 (71%)	428	↓✓
2.2 Unplanned return to hospital - neonatal patient (L)	0.77		2 (67%)	4 (18%)	21 (95%)	22	
2.3 Unplanned return to hospital within 24 hours - adult/paediatric patient (L)	0.057	Metropolitan	1 (7%)	8 (20%)	22 (55%)	40	↓✓
2.4 Unplanned return to hospital within 24 hours - neonatal patient (L)	0.21				5 (83%)	6	
Unexpected deaths							
3.1 Unexpected deaths during HITH admission - adult/paediatric patient (L)	0.011				1 (20%)	5	
3.2 Unexpected deaths during HITH admission - neonatal patient (L)	0					-	

Number of undesirable or non-compliant events
+ % of events accounted for by outlier/centile gains
* % of HCOs that are outliers

GENERAL COMMENTS

Dr David Rankin
Director Clinical Governance and Informatics, Cabrini Health
Royal Australasian College of Medical Administrators
Chair, ACHS Hospital-Wide Working Party Version 13

The Australasian Clinical Indicator Report provides Australian hospitals with invaluable data on risk and trends in hospital performance. The 2019 data for the Hospital Wide Indicator Set reinforces the value of these reports.

One of the key challenges in using this data is translating it into action. Creating reports for Clinical Governance committees and Boards, highlighting comparative performance and trends does not change outcomes for the patient. Taking the data for each of our hospitals and engaging clinical staff, creating action plans, implementing change and monitoring progress is the ongoing mission of the clinical leader. To effect change requires the engagement of all staff, not just nursing, clinical risk or infection control, but specialists, VMOs, service and support staff across the organisation.

It is pleasing to see the number of participating healthcare organisations appears to have stabilised. Although well down from a peak of 525 in 2015, this year's numbers at 418 is similar to the number of HCOs reporting in 2018.

Each hospital is different – in size, case mix, patient age, funding arrangements and mission. Each of these factors has the potential to introduce bias. It is therefore tempting to dismiss comparisons with the excuse that the data is not case mix adjusted, is not stratified by hospital peer group or does not take into accounts your unique circumstances. However, the value of the report comes from the number of participating organisations and the indicators of high and low performance.

One of the concerns with data sets like this is that reporting is voluntary and relies on customised reports from each hospital. Although 391 hospitals provided data on inpatient falls, only 51 hospitals responded to the tonsillectomy question and 22 (12 private) to the appendectomy indicator.

HOSPITAL WIDE

4.2 Inpatient Falls Resulting in Fracture or Closed Head Injury
While the overall rate of inpatient falls appears to have reduced from 0.35 to 0.29 (17%) per hundred bed days over the past five years, the rate of falls with harm has increased from a low of .008 in 2016 to 0.011 in 2019. This 37% rise has occurred despite national consistent and concerted focus on falls prevention.

While the 80th centile rate has fallen slightly over the five-year period, the 20th centile has risen significantly.

It would be helpful to know if this increase is across all hospital types or focused in one particular sector. It would also be helpful to see this figure adjusted for age.

8.1 Rapid Response System Calls to Adult Patients
There appears to be a 30% increase in the rate of rapid response calls over the past 5 years. It is unknown if this trend has come about due to the altered patient type from the additional eleven HCOs that are reporting, a change in the criteria for initiating a rapid response call or a change in the clinical care that is provided to patients.

The increase in both the 20th and 80th centiles may indicate a change in the criteria for initiating a rapid response call.

8.2 Rapid Response System Calls within 24 hours of Admission
Although there has been a small (5%) increase in the number of reporting HCOs, the denominator has remained relatively constant.

The gradual increase may reflect a wide range of changes in healthcare delivery, from inadequate triage and stabilisation in the emergency department, more fragile or high-risk patients presenting for admission, patients proceeding directly to surgery with inadequate workup or altered patient monitoring.

It would be interesting to know if increase in RRS calls is related to changes in admissions arising from the Emergency Department. It would also be of interest to know if they are primarily medical or surgical patients.

8.3 Rapid Response System Attendances within 5 minutes
The 5% reduction in the rate from the mid-90s to 89.1% appears of concern. This may be related to the comparatively low rate in Queensland – at just 68.8%.

With just 56 hospitals reporting against this indicator, 16 public and 42 private, the low response time in Queensland may reflect the mix of their reporting hospitals. Victorian's 16 hospitals averaged 264 RRS calls per year, while Queensland's nine hospitals record an average of 713.

Once again ACHS must be congratulated on their work in collating this very important contribution to quality and safety in Australian hospitals. I would challenge you to review the data and collaborate with your clinical staff to move towards achievable high performance.

HOSPITAL WIDE

GENERAL COMMENTS

Associate Professor Virginia Plummer
Australian College of Nursing

AREA 4: Inpatient falls

Falls by hospitalised patients are a common adverse event[1], often under-reported, costly in human and fiscal terms and a major safety issue for health services[2]. Death, serious injury, and psychosocial outcomes may result, including fear of falling again[2]. Contributing risk factors may be multi-factorial[1, 2, 3, 4] and modifiable risk factors require falls prevention strategic management. Screening of patients for factors to predict falls risk and target interventions to prevent falls[5] is one approach, yet some assessments are a 'yes/no' answer about occurrence of a fall[6]. There are various views on the success of this approach; others suggest that clinician judgement has been shown to be more predictive[7].

Recent data from 2019, includes 20,649 fewer inpatient falls, a reduction of approximately one third. There were 720 records from 391 HCOs, an annual rate of 0.29 per 100 bed days. The fitted rate improved from 0.35 to 0.29, a change of 0.056 per 100 bed days, which was also significant allowing for the composition of contributing HCOs. There were 163 outlier records from 114 HCOs whose combined excess was 7,703 more inpatient falls. The outlier HCO rate was 0.50 per 100 bed days. There were no significant stratum differences in 2018 or 2019.

Ongoing evaluation of knowledge of falls risk factors and falls prevention strategies is important in preventing falls. Increasing admissions in the at-risk age groups and clinical categories such as the very frail will be expected. There is new evidence that well designed education programs for patient education about their role in hospital falls prevention can reduce falls and associated injuries[8].

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SUMMARY OF RESULTS

In 2019 there were 4,994 submissions from 414 HCOs for 19 CIs. Sixteen were analysed for trend, 10 of which improved, 3 deteriorated and the remainder showed no evidence of trend. In 2019, significant stratum variation was observed in 6 CIs. Fourteen CIs showed greater systematic variation, with centile gains in excess of 50% of all events. Outlier gains in excess of 25% of all events were observed in 11 CIs. See Table of Indicator Results below.

Table of Indicator Results

Indicator	Aggregate rate %	Best Stratum	Outlier HCOS (%)*	Outlier Gains (%)+	Centile Gains (%)+	Events#	Trend
Hospital readmissions							
1.1 Unplanned and unexpected readmissions within 28 days (L)	1.2	Private	43 (16%)	22,351 (50%)	41,561 (93%)	44,751	
Return to the operating room							
2.1 Unplanned return to the operating room during the same admission (L)	0.22		23 (12%)	886 (20%)	3,049 (68%)	4,517	↓ ✓
Pressure injuries							
3.1 Inpatients who develop 1 or more pressure injuries (L)	0.04		58 (16%)	1,882 (39%)	4,155 (87%)	4,790	↓ ✓
Inpatient falls							
4.1 Inpatient falls (L)	0.29		114 (29%)	7,704 (17%)	20,686 (47%)	44,229	↓ ✓
4.2 Inpatient falls resulting in fracture or closed head injury (L)	0.01		9 (2%)	271 (18%)	800 (53%)	1,514	↑ ✗
Patient deaths							
5.1 Patient deaths addressed within a clinical audit process (H)	95.5		21 (10%)	785 (80%)	969 (98%)	984	
5.2 Deaths in adult patients who do not have a resuscitation plan (L)	0.10		16 (21%)	244 (37%)	538 (81%)	664	↓ ✓

Number of undesirable or non-compliant events
+ % of events accounted for by outlier/centile gains
* % of HCOs that are outliers

HOSPITAL WIDE

Table of Indicator Results continued

Indicator	Aggregate rate %	Best Stratum	Outlier HCOS (%)*	Outlier Gains (%)+	Centile Gains (%)+	Events#	Trend
Blood transfusion							
6.1 Significant adverse blood transfusion events (L)	0.1		4 (2%)	16 (17%)	46 (49%)	93	↓✓
6.2 Transfusion episodes where informed patient consent was not documented (L)	1.6		11 (10%)	208 (49%)	332 (78%)	426	↓✓
6.3 RBC transfusion where Hb reading is 100 g/L or more (L)	1.8	NSW	7 (8%)	178 (48%)	274 (74%)	370	↑✗
Thromboprophylaxis							
7.1 VTE risk assessment (H)	77.5		2 (22%)	1,139 (45%)	2,321 (93%)	2,507	
Minimum standards for rapid response system calls							
8.1 Rapid response system calls to adult patients (N)	3.6						↑
8.2 Rapid response system calls to adult patients within 24 hours of admission (N)	0.8						↑
8.3 Adult patients experiencing cardiopulmonary arrest (L)	0.1		7 (4%)	144 (13%)	493 (45%)	1,101	↓✓
8.4 Rapid response system attendances within 5 minutes (H)	89.1	NSW	3 (5%)	442 (42%)	926 (87%)	1,060	↓✗
Surgery							
9.1 Pre-operative acute appendicitis - normal histology (L)	8.8	NSW	1 (5%)	4 (3%)	5 (4%)	136	↓✓
9.2 Laparoscopic cholecystectomy - bile duct injury requiring operative intervention (L)	0.18		2 (4%)	4 (20%)	11 (55%)	20	↓✓
9.3 Tonsillectomy - significant reactionary haemorrhage (L)	0.31	Metro-politan			5 (16%)	32	
9.4 Hip fracture care (H)	75.44					56	
Risk assessment							
10.1 Frailty assessment (H)	No data submitted in 2019						

Number of undesirable or non-compliant events
+ % of events accounted for by outlier/centile gains
* % of HCOs that are outliers

GENERAL COMMENTS

Ms Ann Whitfield
Board Director, Australasian College for Infection Prevention and Control

Ms Kylie Robb
Board Director, Australasian College for Infection Prevention and Control

Each year in Australia 180,000 patients suffer healthcare associated infections (HAIs) that prolong hospital stay and consume two million hospital bed days. Healthcare associated infections are one of the most common, significant and preventable patient safety issues today[1].

HAIs surveillance remains critical to healthcare organisations (HCO) to improve the patient experience and outcomes[2]. However, there remains inconsistencies in data collection and methodology across Australia with many HCOs only having to report voluntarily on many indicators[2]. A national study in 2018 demonstrated a higher prevalence of HAIs than previous studies[3] and variance in reported data highlights the need for national reporting. This study was the first national study in 34 years highlighting the need for further research.

The National Safety and Quality Health Service (NSQHS) Standard, Preventing and Controlling Health Care Associated Infections, identify the need for surveillance such as Multi-resistant organisms (MRO), Pneumonia, Catheter Associated Urinary Tract Infections (CAUTI) as well as Surgical Site Infections (SSIs)[4]. However, they do not recommend surveillance of all HAIs and are not specific to the frequency of surveillance. This results in variance with HCOs choosing the type of surveillance required. This can be considered as effective use of the workforce with a HCOs, but it may result in patient risk not being identified. There is also the human factor of error with the lack of definition/methodology, acknowledging the workforce experience and understanding can vary[5] and therefore result in variance in reporting.

Another potential inconsistently across Australia is it is not known which states validate the data submitted from the health care providers and if other systems such as pathology data, National Alert System for Critical Antimicrobial Resistances (CARAlert) and mandatory Notifiable diseases are utilised and included. There is the potential many HAIs could be under reported. Using other sources can assist in developing new surveillance programs targeting risks to patients and communities. MROs of significance are Carbapapenemase-producing Enterobacteriacaea (CPE) and Candida auris.

The final consideration is how healthcare is evolving with shorter lengths of stay and potentially HAIs occurring after discharge but within 30 days and then being treated by General Practitioners. This is a significant gap for HCOs in improving patient care and experience.

Surgical Site Infections are traditionally broken down into emergency and elective SSI (Hip/Knee). However, this does not capture the associated HAIs risk linked with primary or revisions procedures. Acknowledging revisions have higher complication rate, and there is now a growing trend with revisions as implant surgery advances.

The data for Coronary Artery Bypass Grafts (CABG) SSI is combined and to advance opportunities to improve it would be beneficial if data were broken down into elective or emergency. As there is a higher risk associated with emergency procedures such as delay in surgery, antibiotic administration and damage to internal vessels.

INFECTION CONTROL

There is a significant variance in the lower segment Caesarean section data SSI (LSCS) - 2017 data. It is important to highlight why the denominator is so high. It would be beneficial if data were broken down into elective or emergency for the same associated risk factor with emergency surgery and the link to more complications, such as prolonged labour and broken membranes.

The Open Colon rate reduced within the criteria SSI (open colon). It could be useful to understand why there were no potential gains captured. This surgery is normally planned and therefore, there is more control for safer surgery.

Antibiotic use, dose and timing are advised by the national therapeutic guidelines[6] however there continues to be poor compliance with HCOs not reaching 100% compliance. This results in sub optimal care and increases risk of HAIs which can result in additional antibiotic use. This is a significant noting as there is international concern with overuse of antibiotics and the increase in MROs.

The National Immunisation Program (NIP) which includes children and adult's vaccination programs[7] and a National Database Australian Childhood Immunisation Register (ACIR) since 1996[8] has traditionally been utilised for childhood immunisations. However, if States mandated that all HCOs and community sites need to report, this could support targeted immunisation programs and provide data for emerging diseases/virus's for additional vaccination programs. The data demonstrate vaccination increases; however, it is important to acknowledge that 2019 has been the worst influenza season in years. There is a low number of HCOs reporting within the criteria, however 2020 should demonstrate a significant increase.

Whilst the Work Health and Safety Act 2011[9] is clear on reporting harm occurring within the workplace, there is a lack of national data regarding Occupational Exposures. This could potentially be due to different reporting systems and culture with effective/ineffective reporting systems at HCO level. Data on occupational exposures is showing a positive downward trend but it is disappointing to see a low number of public hospitals reporting occupational exposures. It would be meaningful if there was an indicator to capture how many resulted in a Blood Borne Virus within the healthcare worker affected. This data would a powerful tool to change practice, culture and increase safety for healthcare workers.

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INFECTION CONTROL

SUMMARY OF RESULTS

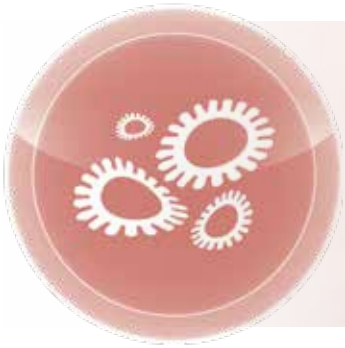
In 2019 there were 2,846 submissions from 338 HCOs for 26 CIs. Twenty were analysed for trend, 15 of which improved, 2 deteriorated and the remaining CI showed no evidence of trend. In 2019, significant stratum variation was observed in 2 CIs. Fifteen CIs showed greater systematic variation, with centile gains in excess of 50% of all events. Outlier gains in excess of 25% of all events were observed in 13 CIs. See Table of Indicator Results below:

Table of Indicator Results

Indicator	Aggregate rate %	Best Stratum	Outlier HCOS (%)*	Outlier Gains (%)+	Centile Gains (%)+	Events#	Trend
Infection surveillance							
1.1 Deep or organ / space SSI - hip prosthesis procedure (L)	0.6				27 (17%)	160	↓✓
1.2 Deep or organ / space SSI - knee prosthesis procedure (L)	0.29		1 (1%)	2 (2%)	23 (20%)	113	↓✓
1.3 Deep or organ / space SSI to chest incision site - CABG (L)	0.73	Private			4 (11%)	35	
1.4 Deep or organ / space SSI - LSCS (L)	0.14		4 (6%)	6 (15%)	24 (60%)	40	
1.5 Deep or organ/space SSI - open colon surgery (L)	0.74					2	
1.6 Deep or organ/space SSI - open rectal surgery (L)	4.13					16	
1.7 Deep or organ/space SSI - laparoscopic-assisted large bowel resection (L)	1.24					6	
Surgical antibiotic prophylaxis (SAP)							
2.1 Timing of SAP for the hip prosthesis procedure (H)	97.84		3 (8%)	28 (39%)	61 (85%)	72	↑✓
2.2 Correct SAP and dose for the hip prosthesis procedure (H)	92.69	NSW	6 (16%)	115 (47%)	211 (86%)	246	↑✓
2.3 Discontinuation of SAP within 24 hours of the hip prosthesis procedure (H)	90.07		8 (22%)	141 (43%)	284 (86%)	331	↑✓
2.4 Timing of SAP for the knee prosthesis procedure (H)	93.8		5 (14%)	188 (71%)	256 (97%)	264	↓✗
2.5 Correct SAP and dose for the knee prosthesis procedure (H)	90.5		4 (11%)	225 (55%)	380 (94%)	406	↑✓

Summary of Indicator Results continued

Number of undesirable or non-compliant events
+ % of events accounted for by outlier/centile gains
* % of HCOs that are outliers



Summary of Indicator Results continued

Indicator	Aggregate rate %	Best Stratum	Outlier HCOS (%)*	Outlier Gains (%)+	Centile Gains (%)+	Events#	Trend
Surgical antibiotic prophylaxis (SAP) *(Cont.)*							
2.6 Discontinuation of SAP within 24 hours of the knee prosthesis procedure (H)	84.2		7 (19%)	346 (52%)	610 (91%)	668	↑✓
2.7 Timing of SAP for the LSCS procedure (H)	91.0		6 (23%)	185 (47%)	346 (88%)	392	↑✓
2.8 Correct SAP and dose for the LSCS procedure (H)	93.9		3 (12%)	116 (44%)	194 (73%)	265	↑✓
2.9 Discontinuation of SAP within 24 hours of the LSCS procedure (H)	90.4		3(12%)	183 (44%)	366 (88%)	415	↑✓
Haemodialysis access-associated bloodstream infection surveillance							
3.1 Haemodialysis - AV-fistula access-associated BSI (L)	0.05					5	↑✗
3.2 Haemodialysis - CI cuffed line access-associated BSI (L)	0.35		1 (6%)	3 (14%)		21	
Vancomycin Resistant Enterococci (VRE)							
4.1 VRE infection within the ICU (L)	0.99		1 (2%)	1 (6%)	6 (33%)	18	↓✓
Staff Immunisation							
5.1 Flu vaccination for permanent staff (H)	64.0		19 (33%)	2,450 (19%)	8,457 (64%)	13,140	↑✓
5.2 Hepatitis B vaccination for permanent staff (H)	86.3		10 (33%)	1,322 (44%)	2,518 (85%)	2,974	↑✓
5.3 MMR vaccination for permanent staff (H)	87.6	Metro-politan	8 (38%)	729 (39%)	1,525 (81%)	1,879	
5.4 Pertussis vaccination for permanent staff (H)	81.8		8 (38%)	986 (36%)	1,775 (64%)	2,775	
5.5 Varicella vaccination for permanent staff (H)	85.6		10 (48%)	877 (40%)	1,819 (83%)	2,195	

Number of undesirable or non-compliant events
+ % of events accounted for by outlier/centile gains
* % of HCOs that are outliers

INFECTION CONTROL

Table of Indicator Results continued

Indicator	Aggregate rate %	Best Stratum	Outlier HCOS (%)*	Outlier Gains (%)+	Centile Gains (%)+	Events#	Trend
Occupational exposures to blood and/or body fluids							
6.1 Reported parenteral exposures sustained by staff (L)	0.028		18 (6%)	415 (12%)	2,562 (76%)	3,382	↓ ✓
6.2 Reported non-parenteral exposures sustained by staff (L)	0.010		20 (7%)	225 (19%)	1,012 (85%)	1,187	↓ ✓

Number of undesirable or non-compliant events
+ % of events accounted for by outlier/centile gains
* % of HCOs that are outliers

GENERAL COMMENTS

Associate Professor Mary White
Australian and New Zealand Intensive Care Society
Chair, ACHS Intensive Care Working Party Version 5

Dr Felicity Hawker
College of Intensive Care Medicine of Australia and New Zealand
Member, ACHS Intensive Care Working Party Version 5

There are 188 intensive care units in Australia of which 111 are accredited for intensive care training by the College of Intensive Care Medicine (CICM). The number of HCOs submitting data for the ACHS clinical indicators ranges from 12 to 73 with a mean of 50.3. This number looks to be less than in previous years and it may be related to reduced data collection/analysis because of COVID-19. Although less of a problem than for paediatric ICUs, the small number of HCOs submitting data for some adult ICU indicators raises questions about generalisability and particularly limits interpretation of regional subgroups. However, the present findings still provide some useful insight into overall practice.

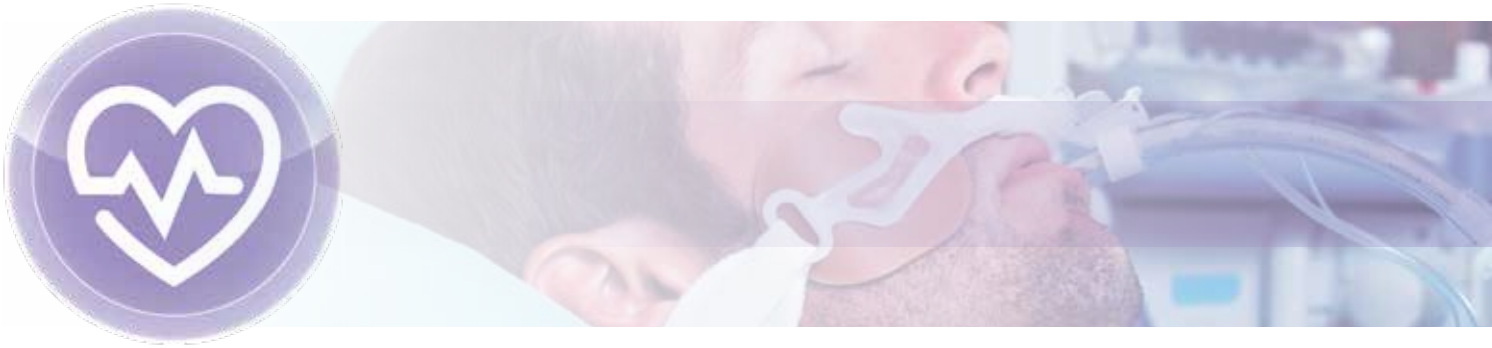
The report shows that the five clinical indicators assessing adult access and exit block (CI1.1-1.5) have been relatively constant since 2012 (at least) but 74 of the 275 HCOs (27%) who contribute data to CIs 1.1-1.5 are outliers. Access to and exit from ICU is dependent on both ICU and hospital-wide systems. The data continue to demonstrate the bimodal distribution described in 2019. Better resourced HCOs that are more likely to be private and metropolitan have rates that are lower and therefore more desirable. On the other hand, HCOs that are public and non-metropolitan tend to have higher rates that on the face of it look less desirable. It is likely that the outliers are all the same HCOs and they are clearly under resourced.

Discharge delay appears to be a particular problem in NSW. This is also the area of the country with one of the highest numbers of ICU beds when indexed to population. Recent evidence about discharge delay suggests it is a complex issue. Discharge delay may potentially result in ICUs being full and thus impair access to ICU for another patient awaiting admission. However, the delay itself may be beneficial for 'the delayed high-risk patient' and result in lower mortality and readmission risk[1].

Indicator 2.1 demonstrates an increase in rapid response calls. Again, it is difficult to know if this represents a deterioration in patient care, since this may also indicate increased responsiveness to deteriorating patients who may have otherwise not have received timely critical care intervention.

The rates for VTE prophylaxis (CI 3.1), adult central line-associated bloodstream infections (CI 4.1) and use of patient assessment systems (CI 5.1-5.3) continue to remain relatively constant. It is surprising that there are so many outliers for indicator 3.1 and that this has not changed. Provision of VTE prophylaxis is almost completely within the control of the ICU and we believe that this rate should be over 95% for all ICUs. The number of outliers may reflect either apathy to this issue (hopefully not but possible), failure of awareness of comparative rates (shouldn't be so for contributing hospitals) or problems with data quality / interpretation of data collection requirements. It is pleasing that there are no outliers for CI 4.1 adult ICU-associated CI-CLABSI.

INTENSIVE CARE



Twelve HCOs contributed data to CI 6.1 Empathetic practice toward families of ICU patients which is an increase from nine in 2018. In 2019 the number of occasions when a family member has received follow-up contact after a patient's death has doubled since this indicator was introduced in 2016. This is encouraging and the overall rate of 86.3% up from 52.2% in 2016 suggests that the HCOs that do this do it very well. This is a key part of good end-of life care and the trend is extremely encouraging.

This year again, the dataset reflects only a small fraction of the paediatric intensive care that is delivered in Australia, and institutions submitting data treat few critically ill children. As a consequence of the small numbers of patients and submitting institutions, the data cannot be interpreted with confidence. None of the five indicators pertaining to paediatric intensive care was concerning, but the confidence intervals around such data are extremely wide.

Adult access and exit block CI 1.1-1.5

The adult access and exit block indicators are very revealing and as we said last year are far more likely to be indicative of under-resourcing with a great divide between private and public. It is difficult then to interpret any of the statistically calculated indicative rates of improvement as being clinically relevant. These improvements may well disappear if private and public hospitals are looked at separately. It may be appropriate that they be considered separately in all parts of the report. The private system caters primarily to elective surgical patients with short stays in ICU without attendant issues of access and exit block while the public ICUs are rife with exit block and after hours discharges. Looking at the outliers for access and exit indicators it is likely that the same ICUs that have exit block and after hours discharge will have access block issues. Analysis of the dataset after removing outliers may also be very revealing.

The Intensive Care Working Party would strongly recommend that demonstrable exit block mitigation strategies in outliers be reviewed regularly (possibly every six months). This is the only way in which to effect a meaningful difference with these indicators and their attendant clinical implications.

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GENERAL COMMENTS

Dr Frances Lin
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Fellow, Australian College of Critical Care Nurses

Professor Elizabeth Manias
School of Nursing and Midwifery, Centre for Quality and Patient Safety Research, Institute for Health Transformation, Deakin University

On behalf of the Australian College of Critical Care Nurses (ACCCN), we are pleased to provide this commentary on the Intensive Care Clinical Indicator Report included in *The Australasian Clinical Indicator Report 2012–2019*. The data set provides important information for intensive care units of contributing healthcare organisations (HCOs) regarding their performance in these areas. Monitoring the ongoing trend of the collected clinical indicators' data enables clinicians to respond promptly to issues, such as an increase in adverse events or lack of patient admission due to inadequate resources. It is good to see that most facilities are demonstrating positive trends in the clinical indicators over time.

INTENSIVE CARE

We noted that the clinical indicators' data set was last reviewed in 2015. We comment on the following trends in clinical indicators.

For indicator 1.1, ICU adult non-admission due to inadequate resources, the fitted rate improved from 0.80 to 0.67, a change of 0.13 per 100 admissions. The difference among public and private hospitals shows a similar trend compared with last year, with public hospitals having higher annual rates than private hospitals (rate 2.48% vs 0.078%). It is also worth noting that the annual rate for Non-metropolitan HCOs (stratum rate 5.31%) is much worse than the metropolitan HCOs (rate 1.27). This disparity could be related to the issue of supply and demand however, it could also be related to patient flow issues. For example, discharge delays in ICUs due to the lack of beds on the wards, could have a follow-on effect on this clinical indicator. Research evidence continues to show that delayed admission to ICUs is associated with increased mortality[1]. HCOs that had a higher rate in this indicator should thoroughly examine the barriers of admitting patients into their intensive care units, so that targeted interventions can be implemented to address the issue. Also, of interest would be to determine if inadequate resources are more apparent during times of the year or days of the week so that further preemptive measures can be taken to prevent this issue in the future. Overall, there were 1,012 fewer adult patients who could not be admitted to an ICU due to inadequate resources, which was a positive result.

For indicator 1.4, ICU - adult discharge delay more than 12 hours, the fitted rate improved from 14.8 to 14.1, a change of 0.67 per 100 adult patients. Nationally, NSW had the highest annual rate of delay (22.9%), followed by Victoria (12.0%) and Queensland (7.75%). Although there were 8,869 fewer patients whose discharge was delayed more than 12 hours in 2019, the rate in the past few years has been high, which indicates the need to better understand the barriers to reducing discharge delays, especially the HCOs that had higher rates in this indicator. There were large variations for this indicator, which could relate to marked variability in intensive care practices. Opportunities exist for major learnings between HCOs about ways in which to manage this indicator.

Indicator 4.1 Adult ICU-associated CI-CLABSI annual rate was 0.41 per 1000 line days which is in a downward trend, and variations across HCOs were small. This result indicates an overall strong effort from contributing HCOs in their CLABSI prevention efforts.

Indicator 6.1 Empathetic practice toward families of ICU patients at end-of-life care, shows a promising continuing upward trend since the indicator was introduced to the data set in 2015, with an annual rate of 86.3%. Increased focus about communicating with families during end-of-life care, especially those of marginalised backgrounds, has helped to encourage clinicians to understand the importance of this issue[2].

Overall, this current report shows that out of the 16 indicators, most showed positive trends. We encourage all HCOs to carefully monitor their own facilities' trends in all clinical indicators, and for those HCOs that did not produce desired trends, investigations can be conducted to better understand factors associated with results, such as the inability to admit patients into ICUs in a timely manner and discharge delays.

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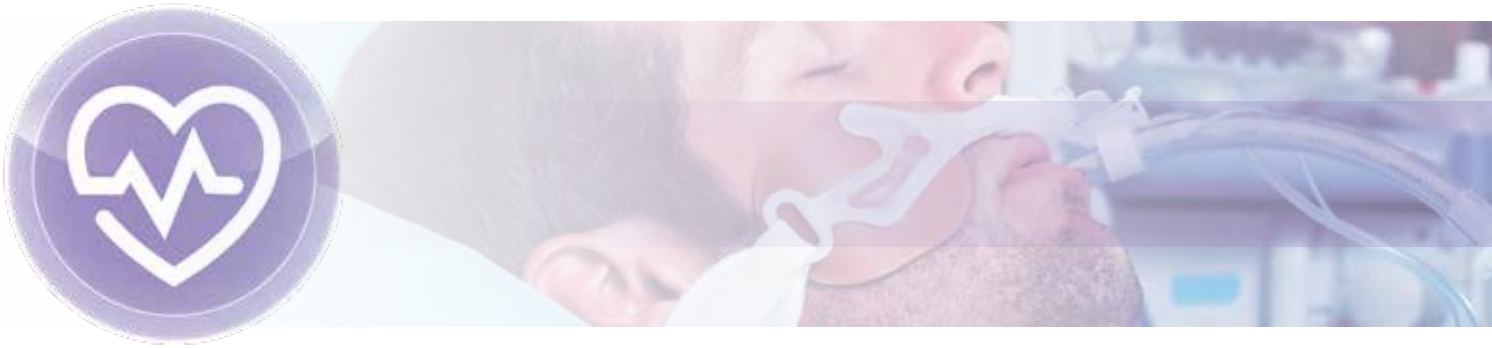

SUMMARY OF RESULTS

In 2019 there were 1,060 submissions from 94 HCOs for 16 CIs. Fifteen were analysed for trend, 11 of which improved, 1 deteriorated and the remainder showed no evidence of trend. In 2019, significant stratum variation was observed in 8 CIs. Eleven CIs showed greater systematic variation, with centile gains in excess of 50% of all events. Outlier gains in excess of 25% of all events were observed in 10 CIs. See Table of Indicator Results below.

Table of Indicator Results

Indicator	Aggregate rate %	Best Stratum	Outlier HCOS (%)*	Outlier Gains (%)+	Centile Gains (%)+	Events#	Trend
Access and exit block							
1.1 ICU - adult non-admission due to inadequate resources (L)	1.6	Metro-politan	12 (24%)	505 (53%)	926 (97%)	950	↓✓
1.2 ICU - elective adult surgical cases deferred or cancelled due to unavailability of bed (L)	1.3	Private	13 (27%)	223 (53%)	405 (96%)	421	↓✓
1.3 ICU - adult transfer to another facility / ICU due to unavailability of bed (L)	0.7	Private	9 (18%)	209 (51%)	382 (92%)	413	↓✓
1.4 ICU - adult discharge delay more than 12 hours (L)	15.2	Private	17 (28%)	3,300 (33%)	8,869 (89%)	9,997	↓✓
1.5 ICU - adult discharge between 6pm and 6am (L)	15.1	Private	23 (35%)	3,254 (31%)	7,834 (75%)	10,472	↓✓
1.6 ICU - paediatric discharge between 6pm and 6am (L)	9.3		2 (18%)	5 (13%)		38	
1.7 ICU - elective paediatric surgical cases deferred or cancelled (L)	0.0					-	

Number of undesirable or non-compliant events
+ % of events accounted for by outlier/centile gains
* % of HCOs that are outliers

INTENSIVE CARE

SUMMARY OF RESULTS

Table of Indicator Results continued

Indicator	Aggregate rate %	Best Stratum	Outlier HCOS (%)*	Outlier Gains (%)+	Centile Gains (%)+	Events#	Trend
Intensive care patient management							
2.1 Rapid response system calls to adult ICU patients within 48 hours of ICU discharge (L)	5.2	Private	10 (19%)	1,127 (36%)	2,745 (87%)	3,158	↑ ✗
2.2 Rapid response system calls to paediatric ICU patients within 48 hours of ICU discharge (L)	0.2					2	↓ ✓
Intensive care patient treatment							
3.1 VTE prophylaxis in adult patients within 24 hours of ICU admission (H)	94.6	Private	16 (24%)	1,823 (48%)	3,708 (98%)	3,788	
Central line-associated bloodstream infection							
4.1 Adult ICU-associated CI-CLABSI (L)	0.4	NSW			3 (7%)	43	↓ ✓
4.2 Paediatric ICU-associated PI-CLABSI (L)	0.9					1	
Utilisation of patient assessment systems							
5.1 Participation in the ANZICS CORE Adult Patient Database (APD) (H)	96.7		12 (20%)	1,750 (83%)	2,107 (100%)	2,114	↑ ✓
5.2 Participation in the ANZICS CORE Paediatric Intensive Care (ANZPIC) registry (H)	94.9		3 (38%)	17 (85%)	17 (85%)	20	↑ ✓
Empathetic practice							
6.1 Empathetic practice toward families of ICU patients (H)	86.3		3 (25%)	22 (30%)	56 (76%)	74	↑ ✓

Number of undesirable or non-compliant events
+ % of events accounted for by outlier/centile gains
* % of HCOs that are outliers

GENERAL COMMENTS

Associate Professor Virginia Plummer
Australian College of Nursing
Member, ACHS Internal Medicine Working Party Version 6

CI 4.1 Assessment of cognitive function for all general medical patients 65 years or over at admission

CI 4.2 Geriatric patients-documented assessment of physical function

People are living longer today than in previous generations and most are living with one or two chronic conditions[1]. Older people aged > 65 years[2] are individuals with diverse care needs not defined by age alone[3] and generally engage with more health services, more often than those < 65years[4]. Cognitive impairment increases with aging[1, 5]. The evaluation of cognition should be included for functional decline among older adults, in addition to physical assessment on admission to hospital[1]. Important parameters can then be measured, enabling prediction of functional outcomes and prevention of complications.

There were seven records from four HCOs, the number gradually declining over seven years from 12 in 2012 for CI 4.1 (Cognition assessment) and eight records from 5 HCOs declining at a similar rate from 14 in 2012 for CI 4.2 (Physical assessment). Declining numbers of HCOs is unlikely to be perceived as lack of importance of the indicator, rather it may be due to mandatory reporting of the same data to other agencies such as Aged Care Assessment Screening (ACAS).

The annual rate for assessment of cognition function was 78%, and notably the annual rate for assessment of physical function which was again 98.3% and very little variation between the HCOs with small potential gains. The use of standardised measures such as Mini Mental State Examination MMSE, the Functional Independence Measure (FIM), and Barthel's index are likely to contribute to both the annual rates and the low variation. There were two outlier records from one HCO whose combined excess was 324 fewer patients who have had their cognition assessed. There were two outlier records from one outlier HCO with a combined excess of 33 fewer patients having a documented objective assessment of physical function.

Factors that may contribute to this variation include pressure for timely admission of patients, for example meeting Emergency Department Access Targets, including to admit 'boarders' from other clinical units and pressure to discharge early, resulting in incomplete discharge planning. It is essential that assessment of older patients extends beyond physical function to more fully include standardised cognition assessment monitoring and predictive approaches to care and that clinicians across the multidisciplinary team collaborate to ensure patients are screened on admission.

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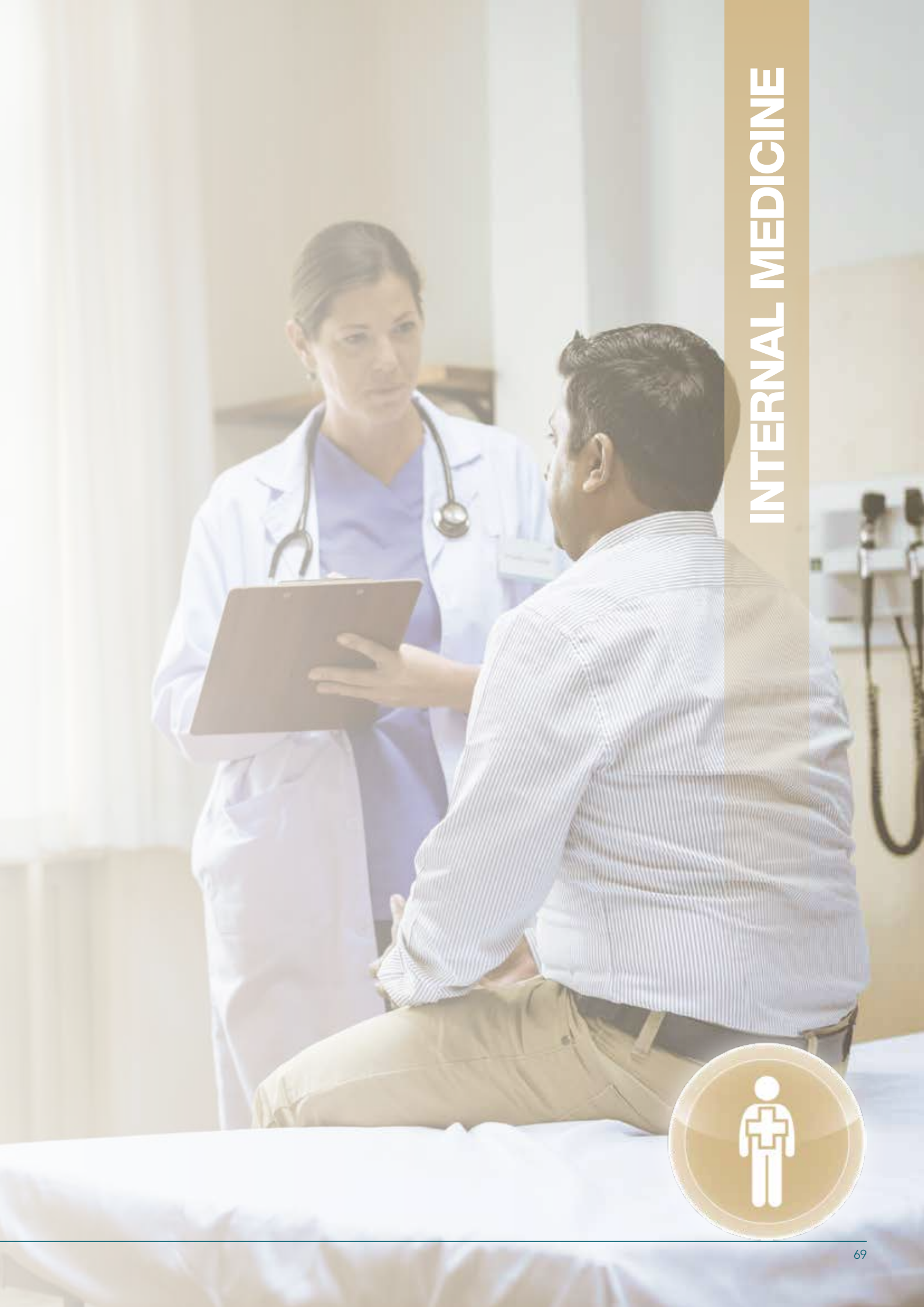


INTERNAL MEDICINE

SUMMARY OF RESULTS

In 2019 there were 114 submissions from 24 HCOs for 18 CIs. Five were analysed for trend, 3 of which improved, 1 deteriorated and the remaining CI showed no evidence of trend. In 2019, significant stratum variation was observed in 0 CIs.

Four CIs showed greater systematic variation, with centile gains in excess of 50% of all events. Outlier gains in excess of 25% of all events were observed in 2 CIs. See Table of Indicator Results below.

Table of Indicator Results

Indicator	Aggregate rate %	Best Stratum	Outlier HCOS (%)*	Outlier Gains (%)+	Centile Gains (%)+	Events#	Trend
Cardiovascular disease							
1.1 CHF - prescribed ACEI / A2RA (H)	95.6				3 (30%)	10	
1.2 CHF - prescribed beta blocker (H)	98.0				2 (33%)	6	
1.3 CHF and AF - prescribed warfarin (H)	94.7					3	
1.4 CHF - chronic disease management referral including physical rehabilitation (H)	71.0				23 (38%)	61	
1.5 PTCA - vessels where primary success achieved (H)	96.4				24 (20%)	122	
Endocrine disease							
2.1 Hospitalised patients with severe hypoglycaemia less than 2.8 mmol/L (L)	17.4					49	
Acute stroke management							
3.1 Acute stroke - documentation of swallowing screen conducted within 24 hours prior to food or fluid intake (H)	78.2				23 (10%)	229	↑✓
3.2 Acute stroke - documented physiotherapy assessment within 48 hours of presentation (H)	74.3				57 (21%)	270	↓✗
3.3 Acute stroke - plan for ongoing community care provided to patient / family (H)	83.4		1 (17%)	23 (18%)	69 (53%)	129	↑✓
3.4 Acute stroke - documented treatment in a stroke unit during hospital stay (H)	88.9		1 (14%)	22 (20%)	39 (35%)	110	↑✓

Number of undesirable or non-compliant events
+ % of events accounted for by outlier/centile gains
* % of HCOs that are outliers

INTERNAL MEDICINE

Summary of Indicator Results continued

Indicator	Aggregate rate %	Best Stratum	Outlier HCOS (%)*	Outlier Gains (%)+	Centile Gains (%)+	Events#	Trend
Care of the elderly							
4.1 Medical patients 65 years or older - cognition assessment using validated tool (H)	78.0		1 (25%)	324 (49%)	651 (98%)	667	
4.2 Geriatric patients - documented assessment of physical function (H)	98.3		1 (20%)	33 (59%)	51 (91%)	56	
4.3 Documentation of delirium plan (H)	No data has been submitted for this indicator since 2015						
4.3 Documentation of delirium plan (H)	No data has ever been submitted for this indicator						
Respiratory disease							
5.1 COPD - chronic disease management service referral (H)	64.9		1 (50%)	11 (18%)	23 (38%)	61	
5.2 Acute asthma - assessment of severity documented on admission (H)	91.6		1 (25%)	2 (17%)	7 (58%)	12	
5.3 Acute asthma - appropriate discharge plan documented (H)	60.1				9 (16%)	57	
Gastrointestinal disease							
6.1 Haematemesis / melaena with blood transfusion - gastroscopy within 24 hours (H)	75.2				17 (45%)	38	
6.2 Haematemesis / melaena with blood transfusion & subsequent death (L)	4.6					7	
Oncology							
7.1 Time to administration of antibiotics for patients admitted with febrile neutropenia (H)	83.3					1	

Number of undesirable or non-compliant events
+ % of events accounted for by outlier/centile gains
* % of HCOs that are outliers

GENERAL COMMENTS

Dr Vijay Roach
President, Royal Australia and New Zealand College of Obstetricians and Gynaecologists

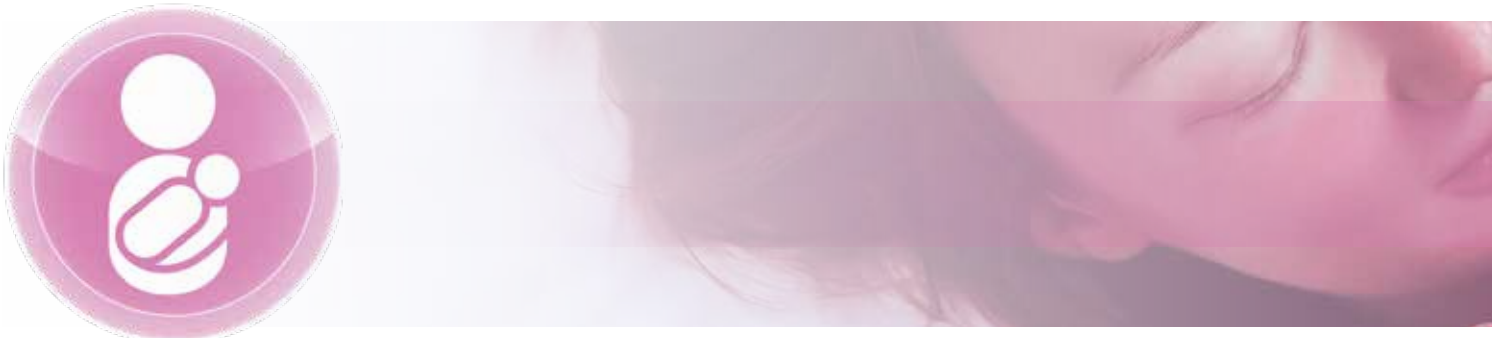
The Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG) is again pleased to have the opportunity to comment on the maternity indicators in the Australian Council on Healthcare Standards (ACHS) / HSRG *Australasian Clinical Indicator Report for 2012-2019*. Many women want to know what to expect on their pregnancy and birth journey and the data in this report makes an important contribution to the information women can be given to allow key decisions to be made regarding their care. It enables women to manage expectations with respect to the likelihood of needing specific treatments and the outcomes that might be reasonably expected along the way. Again, we congratulate ACHS for another year of excellent work.

The 2019 report is reassuring in many areas. In 2011, ACHS introduced a clinical indicator that reports the rate of severe fetal growth restriction (FGR) at, or beyond, the expected due date for the pregnancy. This is important because we know that the mortality of the FGR fetus increases exponentially as the gestation advances beyond 39 weeks' gestation [(1)]. The improvement in this statistic continued in 2019 so that the incidence was down to 1.16% (the lowest ever) after beginning at 1.62%. Well done to ACHS for encouraging clinicians (both obstetricians and midwives) to focus on the detection of FGR, and to the clinicians for almost certainly impacting on the mortality and long-term morbidity in this significantly at-risk population.

Induction of labour continues to trend upward. After a major increase in 2018, there was a further, but lesser, increase in 2019 to 44.9% in "selected primipara" giving birth. The increase over the reporting period is quite remarkable, evolving almost linearly from only 30.7% in 2012. There are, of course, many maternity conditions where the evidence favours induction of labour at term over awaiting spontaneous labour [(2)]. Particularly relevant to contemporary practice is evidence favouring induction of labour in the presence of fetal macrosomia [(3)]. An increasingly aware maternity population translates to more women choosing risk minimisation strategies over a "leave it to nature" approach [(4)].

The rate of instrumental vaginal birth in selected primipara continues to slowly increase. This almost certainly reflects increased availability of regional analgesia in labour and to that extent is reassuring. It is notable that the rate of fourth degree tear has markedly declined over the reporting period and was at its lowest level to date in 2019. As fourth degree tears are most often a consequence of difficult midcavity operative births [(5)], the data is strongly suggestive that the increase in instrumental births is reflective of more relatively safe deliveries from a low pelvic station. Long term faecal incontinence is a rare complication of childbirth [(6)] but dreadful for those affected. The continuing positive trend in the incidence of 4th degree tear is most welcome, albeit being aware that the absence of the same trend in 3rd degree tears probably reflects clinicians becoming increasingly more vigilant in their diagnosis.

MATERNITY



Finally, the caesarean section rate in selected primipara continues to increase, reaching 32.4% of all births in that patient group, after beginning at 28.9% in 2012. The corresponding downward trends in the rates of transfusion for haemorrhage, 4th degree tears and caesarean section under general anaesthesia all reflect a change in perception, and acceptance, of risk with mothers opting for caesarean section in preference to a long, difficult labour and the potential of a midcavity instrumental birth that is often accompanied by a postpartum haemorrhage and serious trauma to the pelvic floor.

There are many factors at play. Clinicians (midwives and obstetricians) are more responsive to the need for women-centred care and communication of risk has improved. The maternal population, who are older, more obese, and with a lower planned future parity, are better informed and have a better understanding of potential risks. Caesarean section is now an acceptable outcome, contrasting with a past approach of "vaginal birth at all costs". The changing statistics reflect women exercising choice.

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MATERNITY

GENERAL COMMENTS

Dr Helen Cook
Ms Maureen Hutchinson
Australian College of Midwives

The Australian College of Midwives thanks the ACHS for the opportunity to comment on the Maternity Clinical Indicators. We note that the denominator in most of these indictors represent approximately 10% of the total birthing population and these numbers appear to be reducing each year. We are concerned that the value of these outcomes is diminished and has become less relevant as a guide to clinical outcomes. We would welcome a review of the data collection processes to ensure more robust and comprehensive data collection can occur into the future.

CI 1.2: Induction of labour

We are concerned about the increasing rate of induction of labour (IOL) in selected primips. These are women who start their first pregnancy without risk factors and the reasons for what appears to be unnecessary IOL in this group requires further investigation. Further clarification as to whether the new stillbirth information and ARIVE trial are impacting on these findings[1] would be beneficial.

CI 2.1: Vaginal birth after caesarean section

VBAC rates continue to decrease. We note a 2018 paper by Fitzpatrick et al which shows a statistical increase in adverse outcomes for VBAC v ERCS. The numbers in this study for poor outcomes, although statistically significant, are still very low with 2/1,000 risk of uterine rupture for VBAC and a rate of 4/10,000 for ERCS[2].

AREA 3: Major perineal tears and surgical repair of the perineum

With regard to perineal outcomes, we note that the increase in episiotomy rates appears to have had no impact on the rates of 3rd and 4th degree tears. Indeed, all that has changed is an increase in episiotomies for the sake of a decrease in intact perineum.

CI 10.1: Term neonates - transferred or admitted to a NICN or SCN

This indicator has remained unchanged now over many years and provides little useful information. Acuity of babies would be more helpful for understanding neonatal outcomes and how best to direct care. More valuable information is collected via the ANZNN around this indicator[1]. It may be timely to review this indicator.

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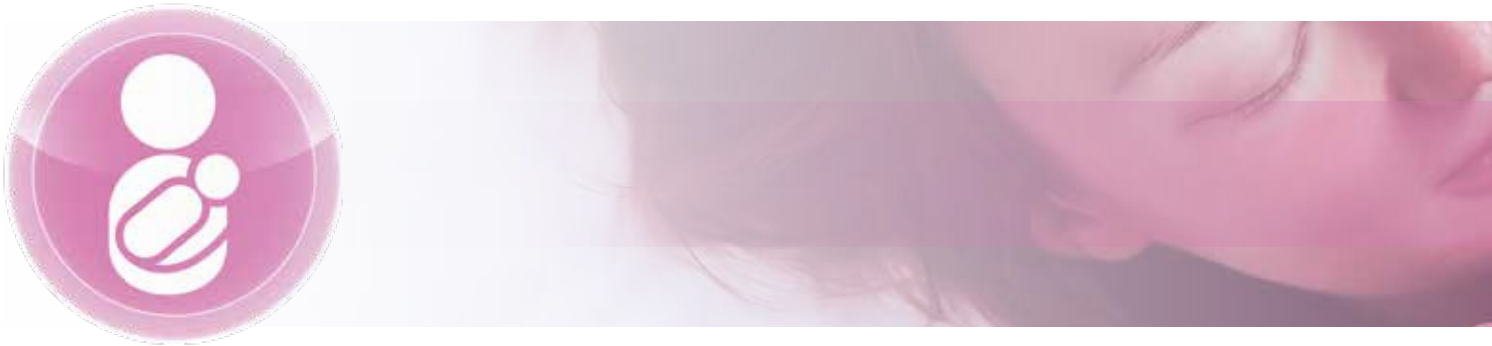


SUMMARY OF RESULTS

In 2019 there were 3,717 submissions from 135 HCOs for 21 CIs. Seventeen were analysed for trend, 7 of which improved, 7 deteriorated and the remaining CI showed no evidence of trend. In 2019, significant stratum variation was observed in 10 CIs.

Five CIs showed greater systematic variation, with centile gains in excess of 50% of all events. Outlier gains in excess of 25% of all events were observed in 4 CI. See Table of Indicator Results below.

Table of Indicator Results

Indicator	Aggregate rate %	Best Stratum	Outlier HCOS (%)*	Outlier Gains (%)+	Centile Gains (%)+	Events#	Trend
Outcome of selected primipara							
1.1 Selected primipara - spontaneous vaginal birth (H)	41.3		13 (11%)	838 (4%)	2,306 (11%)	20,923	↓✗
1.2 Selected primipara - induction of labour (L)	44.9		2 (2%)	174 (1%)	1,916 (12%)	16,185	↑✗
1.3 Selected primipara - instrumental vaginal birth (L)	26.0		1 (1%)	36 (0%)	1,210 (13%)	9,360	↑✗
1.4 Selected primipara - caesarean section (L)	32.4		15 (13%)	920 (8%)	2,627 (22%)	11,701	↑✗
Vaginal birth after caesarean section (VBAC)							
2.1 Vaginal delivery following previous birth of caesarean section (N)	10.4						↓
Major perineal tears & surgical repair of the perineum							
3.1 Selected primipara - intact perineum (H)	11.5		9 (9%)	211 (1%)	2,242 (11%)	19,863	↓✗
3.2 Selected primipara - episiotomy and no perineal tear (N)	36.8						↓
3.3 Selected primipara - perineal tear and NO episiotomy (L)	42.3	NSW	6 (7%)	189 (2%)	1,936 (23%)	8,397	↓✓
3.4 Selected primipara - episiotomy and perineal tear (L)	7.2	NSW	4 (5%)	75 (5%)	530 (38%)	1,403	↑✗
3.5 Selected primipara - surgical repair of perineum for third degree tear (L)	4.5	Private	3 (3%)	74 (7%)	317 (31%)	1,030	
3.6 Selected primipara - surgical repair of perineum for fourth degree tear (L)	0.2				2 (4%)	56	↓✓

Number of undesirable or non-compliant events
+ % of events accounted for by outlier/centile gains
* % of HCOs that are outliers

MATERNITY

Table of Indicator Results continued

Indicator	Aggregate rate %	Best Stratum	Outlier HCOS (%)*	Outlier Gains (%)+	Centile Gains (%)+	Events#	Trend
General anaesthesia for caesarean section							
4.1 General anaesthetic for caesarean section (L)	5.5	Private	17 (15%)	459 (16%)	1,503 (53%)	2,846	↓ ✓
Antibiotic prophylaxis & caesarean section							
5.1 Appropriate prophylactic antibiotic at time of caesarean section (H)	93.7		14 (15%)	1,074 (46%)	2,111 (91%)	2,322	↑ ✓
Exclusive breastfeeding							
6.1 Selected primipara - exclusive breastfeeding (H)	69.7		6 (13%)	327 (7%)	1,419 (30%)	4,756	
Postpartum haemorrhage / blood transfusions							
7.1 Vaginal birth - blood transfusion (L)	1.3	Private	5 (4%)	159 (14%)	416 (37%)	1,114	
7.2 Caesarean section - blood transfusion (L)	1.1	Private	3 (3%)	57 (10%)	181 (31%)	589	↓ ✓
Intrauterine growth restriction (IUGR)							
8.1 Babies - birth weight less than 2,750 g at 40 weeks gestation or beyond (L)	1.2		1 (1%)	9 (2%)	64 (15%)	416	↓ ✓
Apgar score							
9.1 Term babies - Apgar score of less than 7 at 5 minutes post-delivery (L)	1.3	Private	5 (4%)	82 (5%)	580 (33%)	1,740	
All admissions of a term baby to special care nursery or neonatal intensive care nursery							
10.1 Term babies - transferred or admitted to NICN or SCN (L)	10.4		29 (25%)	2,088 (16%)	6,486 (48%)	13,395	↑ ✗
Specific maternal peripartum adverse events							
11.1 Specific maternal peripartum adverse events addressed within peer review process (H)	67.3		2 (8%)	55 (54%)	97 (95%)	102	

Number of undesirable or non-compliant events
+ % of events accounted for by outlier/centile gains
* % of HCOs that are outliers

GENERAL COMMENTS

Dr Sasha Bennett
NSW Therapeutic Advisory Group
Chair, ACHS Medication Safety Working Party

Two hundred and seventy-four health care organisations (HCOs) undertook at least one clinical audit using the ACHS Clinical Indicators (CIs) for Medication Safety Version 4 during 2019. Private HCOs remain the major users (70%) as compared to public hospitals and two-thirds of all HCOs were based in metropolitan areas. In general, there appears to be stability or improvement across the system with regard to medication safety as reflected by 2019 audit results, although results regarding medication-related processes at admission (CIs 3.1 and 6.1), discharge patient medication lists (CI 5.6) and prescriptions for guideline-concordant antibiotics (CIs 2.1 and 2.3) and the low uptake of CIs in specific therapeutic areas are concerning. A review of the collated CI results can be found in the next section.

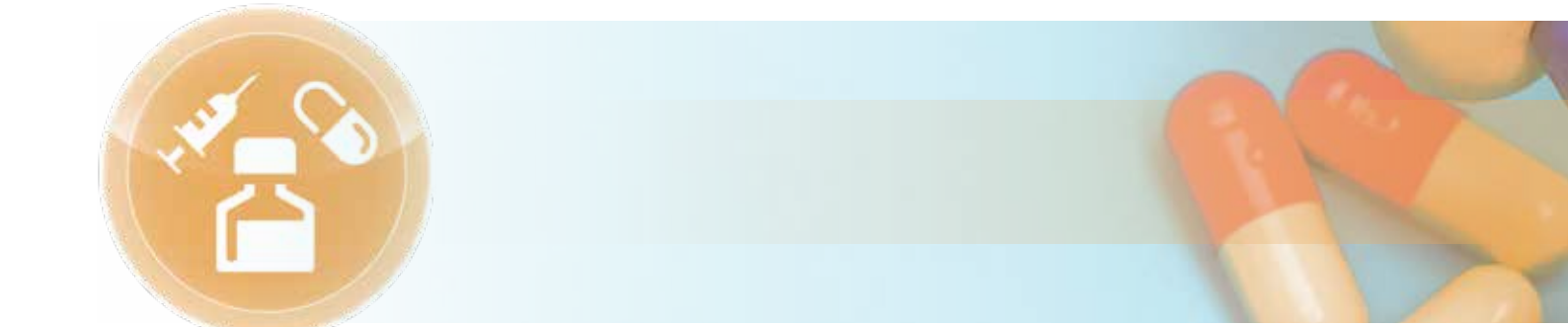
Clinical auditing provides a number of important outcomes. It assists health care organisations (HCOs) to understand the processes, systems and outcomes of care that they deliver and ensure it is reliable, safe and of high quality; they ensure HCOs comply with National Safety and Quality Health Service (NSQHS) standards of care; they drive continuous quality improvement; they inform jurisdictions of performance and drive changes in policy and investment around safety and quality; and lastly, they have the potential to identify emerging issues. Given the limited resources and increasing demand for audits, hospitals need to carefully consider how often and which clinical indicators need to be measured to ensure that they are targeting their gaps and demonstrating improvements over time.

Medication-related accreditation assessments since 2013 have focused on evaluation of an organisation's systems and outcomes known to be generally less than optimal across Australia and/or to cause significant preventable harm to the Australian population. These include healthcare-associated infection, inappropriate antimicrobial use, documentation of adverse drug reactions and medication reconciliation. Furthermore, HCOs are required to identify local areas requiring safety and quality improvement and prioritise potential risk. These locally identified gaps should also be monitored, reported and used to drive local quality improvement activity in order to achieve performance that meets nominated targets. Of concern, is the reduced uptake of CIs targeting known areas of suboptimal quality use of medicines in hospitals such as antithrombotic and antibiotic therapies.

The ACHS CI set was expanded in 2015 and incorporates eighteen of the 37 National Quality Use of Medicine (QUM) Indicators for Australian Hospitals. The ACSQHC released the second edition of the NSQHS Standards in November 2017 with health service organisations to be assessed against the standards in the next edition from January 2019. Thus the results in this current ACHS Medication Safety Report represent assessment against the new edition of the NQHS Standards.

The 2019 results suggest there is wide variation in sample sizes being used in clinical auditing. Hospitals need to ensure that the sample size that they select will provide as true a picture of practice as is feasibly possible and will convince stakeholders of a process for the need of action when suboptimal results are obtained.

MEDICATION SAFETY



The implementation of electronic medical records and medication management systems (eMR and eMMS, respectively) not only represents the ability to improve acquisition of data but may also represent diversion of existing resources, need for new resources and systems, the upskilling of staff to ensure appropriate utility, and the development of new relationships and workflows. The need for clinical auditing is even more critical given the huge change in workflow that these new technologies present. Many of these CIs may be used for 'before and after' studies of eMR and/or eMMS implementations and the results in 2019 suggest that this has been occurring in some jurisdictions. Some CIs should become less important with the implementation of eMMS e.g. use of error-prone abbreviations, ADR charting; however, emergence and measurement of other potential medication safety issues need to be considered.

The most commonly reported Clinical Indicator (CI) continues to be CI 6.3, Number of medication errors resulting in an adverse event requiring intervention per number of occupied bed days, which was undertaken by 252 HCOs. How hospitals use this 'automated' indicator to guide their medication safety practices requires investigation.

Similar to 2018 results, the most popular non-automated indicators (CIs 1.1 - 6.1) during the 2019 audit year were CIs 3.1, 3.2, 3.3, 5.5, and 5.6 demonstrating a focus on processes that target medication reconciliation at admission, inpatient medication charting and communication of medication information for ongoing care after discharge. There is an increasing trend for HCOs to measure CIs 3.1 (medication reconciliation at admission), 3.2 (ADR documentation on medication chart) and 5.6 (current accurate and comprehensive patient medication list at discharge).

It was reassuring to see a much greater number of patient records in 2019 were audited for CI 6.1 (the review of patients by a clinical pharmacist within one day of admission) compared to previous years although the number of auditing HCOs were similar to previous years. Of concern, the rate of pharmacist review within one day of admission continues to deteriorate and there was one HCO which had particularly low rates of 25%. Given that this review process should accompany medication reconciliation processes at admission (measured by CI 3.1), it is not surprising that results for CI 3.1 do not significantly improve. The processes at admission indicate the potential for increasing risk of medication-related harm at admission and should be of concern to health administrators and clinicians. The results for CI 3.1 were worse in public HCOs compared to private HCOs (whose involvement increased in 2019) and Victoria and Western Australia performed very well whereas Queensland results suggest room for significant improvement.

Medication charting of adverse drug reactions (CI 3.2) remains high (96%) and increasing numbers of HCOs are using this CI and, unlike in previous years, there was little difference between metropolitan hospitals and non-metropolitan hospitals. There was also little jurisdictional variation although WA HCOs continues to demonstrate significant potential for improvement. The patient numbers suggest that electronic Medication Management Systems (eMMS) assisted auditing in NSW and Victoria.

Fewer HCOs used CI 3.3 (rate of error-prone abbreviations (EPA) in medication orders) in 2019 and there has been a trend of increasing EPAs over the last 4 years. Further, the rate of EPA use continues to be higher in non-metropolitan hospitals (8.3%) compared to metropolitan hospitals (2.3%). This may indicate the implementation of eMMS in metropolitan sites and possible de-skilling of prescribers leading to more errors when they are on non-metropolitan placements. There remains further room for improvement although the implementation of eMMS in many hospitals should reduce this source of medication error.

MEDICATION SAFETY

The results from audits using Clinical Indicators 5.5 and 5.6, *Percentage of patients who receive a current, accurate and comprehensive medication list at discharge summaries* and *Percentage of patients who receive a current, accurate and comprehensive medication list at the time of hospital discharge* are interesting. Laudably, uptake of CIs 5.5 and 5.6 continues to grow in terms of HCOs and patient numbers. Audit results of CI 5.6 (51%) continue to show substantial room for improvement. Similar numbers of public and private HCOs used CI 5.6 but public hospitals reviewed a 10-fold increased number of patients suggesting that eMMS analysis was again used to obtain the result.

In contrast to the suboptimal result for CI 5.6 (concerning the medication list provided to patients), the result for CI 5.5 (concerning the medication list in discharge summaries) was 95%, similar to the 2018 result of 97%. As stated in the 2019 commentary, the CI 5.5 result continues to be dubious and warrants further investigation. Far fewer patient records are audited in CI 5.5 compared to those in CI 5.6. There would be benefit in auditing these two indicators at the same time.

The numbers of HCOs undertaking audits involving antibiotic therapy, antithrombotic therapy and pain management were low [average 4.9, (range 0-8)]. This is of significant concern given that these CIs target commonly encountered medication safety issues; although it may be that other measures are being used by HCOs to measure the safety and quality of care involving use of these medications.

Although 70% of all HCOs represented the private HCO sector, there were generally far greater indicator denominator numbers (patients, charts, orders) in the public HCO sector. This may or may not be appropriate.

It is unclear which hospitals were undertaking accreditation during 2019 and what impact this has on the use of the CIs. Only one CI appears to be routinely used by the majority of hospitals: CI 6.3, Reporting of medications errors resulting in an adverse event requiring intervention. Given the high level reporting of this indicator and the variation in results (public versus private and between jurisdictions), reporting of how this CI influences care would be useful. This also applies to Clinical Indicator 6.2 Reporting of adverse drug reactions to TGA which, while being easily obtained, is only reported by 82 HCOs in 2019.

The ACHS CI set provides the use of validated CIs targeted at well-recognised gaps in medication safety. The collation of CI results provides benchmarking information but importantly hospitals need to look at their results and previous results to assess their need for further quality improvement intervention. Comparisons of the results between sectors, whether public versus private or metropolitan versus rural, need to interpreted very cautiously as they may not have been measured using the same methodology or have the same casemix.

It remains critically important that clinical audits that address local issues as well as well-recognised evidence-based gaps are well-resourced in busy resource-limited health care environments. Recent implementation of technology such as eMMS are beginning to have a substantial impact on clinical auditing processes and results and information regarding their impact is required. Feedback from HCOs regarding audits in the area of medication safety should be regularly obtained to ensure appropriate responsiveness in the health care system.

SUMMARY OF RESULTS

In 2019 there were 1,079 submissions from 274 HCOs for 19 CIs. Thirteen were analysed for trend, 6 of which improved, 5 deteriorated and the remainder showed no evidence of trend. In 2019, significant stratum variation was observed in 4 CIs.

Fourteen CIs showed greater systematic variation, with centile gains in excess of 50% of all events. Outlier gains in excess of 25% of all events were observed in 4 CIs. See Table of Indicator Results below.

Table of Indicator Results

Indicator	Aggregate rate %	Best Stratum	Outlier HCOS (%)*	Outlier Gains (%)+	Centile Gains (%)+	Events#	Trend
Antithrombotic therapy							
1.1 Percentage of patients prescribed enoxaparin whose dosing schedule is appropriate (H)	75.9		1 (17%)	45 (36%)	116 (94%)	124	
1.2 Percentage of patients prescribed hospital initiated warfarin whose loading doses are consistent with a Drug and Therapeutics Committee approved protocol (H)	79.8				17 (77%)	22	↑✓
1.3 Percentage of patients with an INR above 4 whose dosage has been adjusted or reviewed prior to the next warfarin dose (H)	98.8					2	↑✓
Antibiotic therapy							
2.1 Percentage of prescriptions for restricted antibiotics that are concordant with drug and therapeutics committee approved criteria (H)	46.8		1 (14%)	53 (29%)	145 (80%)	182	↓✗
2.2 Percentage of patients in whom doses of empirical aminoglycoside therapy are continued beyond 48 hours (L)	0.0					-	
2.3 Percentage of patients presenting with community acquired pneumonia that are prescribed guideline concordant antibiotic therapy (H)	57.1				12 (67%)	18	
Medication ordering							
3.1 Percentage of patients whose current medications are documented and reconciled at admission (H)	61.5	Private	7 (12%)	8,900 (26%)	28,876 (85%)	33,964	↓✗
3.2 Percentage of patients whose known adverse drug reactions are documented on the current medication chart (H)	96.1		24 (29%)	1,034 (63%)	1,277 (77%)	1,649	↓✗
3.3 Percentage of medication orders that include error-prone abbreviations (L)	5.4	Metro-politan	7 (44%)	743 (40%)	1,419 (76%)	1,870	↑✗
3.4 Percentage of patients receiving cytotoxic chemotherapy whose treatment is guided by a hospital approved chemotherapy treatment protocol (H)	99.4					3	

Number of undesirable or non-compliant events
+ % of events accounted for by outlier/centile gains
* % of HCOs that are outliers

MEDICATION SAFETY

Table of Indicator Results continued

Indicator	Aggregate rate %	Best Stratum	Outlier HCOS (%)*	Outlier Gains (%)+	Centile Gains (%)+	Events#	Trend
Pain management							
4.1 Percentage of postoperative patients that are given a written pain management plan at discharge AND a copy is communicated to the primary care clinician (H)	No data in in 2019						
Continuity of care							
5.1 Percentage of discharge summaries that include medication therapy changes and explanations for changes (H)	77.3		1 (8%)	13 (5%)	182 (75%)	244	↑✓
5.2 Percentage of patients discharged on warfarin that receive written information regarding warfarin management prior to discharge (H)	77.3		1 (13%)	19 (36%)	48 (91%)	53	
5.3 Percentage of patients with a new adverse drug reaction (ADR) that are given written ADR information at discharge AND a copy is communicated to the primary care clinicia (H)	89.1		1 (20%)	9 (90%)	10 (100%)	10	
5.4 Percentage of patients receiving sedatives at discharge that were not taking them at admission (L)	5.3		1 (25%)	3 (38%)	5 (63%)	8	
5.5 Percentage of patients whose discharge summaries contain a current, accurate and comprehensive list of medicines (H)	95.0	NSW	13 (65%)	336 (69%)	190 (39%)	489	↑✓
5.6 Percentage of patients who receive a current, accurate and comprehensive medication list at the time of hospital discharge (H)	51.5	NSW	1 (4%)	4,574 (11%)	39,355 (95%)	41,474	↑✓
Hospital wide policies							
6.1 Percentage of patients that are reviewed by a clinical pharmacist within one day of admission (H)	54.9		1 (9%)	114 (2%)	4,302 (64%)	6,689	↓✗
6.2 Adverse drug reactions reported to TGA (N)	0.08						↓
6.3 Medication errors - adverse event requiring intervention (L)	0.01		15 (6%)	380 (55%)	629 (91%)	693	↓✓

Number of undesirable or non-compliant events
+ % of events accounted for by outlier/centile gains
* % of HCOs that are outliers

GENERAL COMMENTS

Dr William John Kingswell

Royal Australian and New Zealand College of Psychiatrists
Deputy Chair Committee for Education, RANZCP
Chair, ACHS Mental Health Working Party Version 8

This year's publication of the 2012-2019 *Australasian Clinical Indicator Report* is the result of the strenuous efforts of those HCOs who collect and contribute data (96 in 2019 up from 93 the previous year) and the ACHS staff and volunteers who create the valuable information presented in this comprehensive report. However, to realise the value of this investment HCOs must reflect on the information provided and drive improvement[1].

There are nine groups of indicators that can be further grouped into four broad areas: those that attempt to measure consumer/carer engagement (diagnosis and care planning, continuity of care, community care), those that measure treatment interventions (physical examination, prescribing and ECT), those that measure restrictive practice (seclusion and restraint, mental health act status) and those that measure critical incidents.

Engagement with consumers as measured by the proportion of consumers with an individual care plan that they have signed is consistently high. However, engagement with their nominated carers is disappointingly low with less than one in three carers signing an individual care plan and in the outlier HCO less than one in ten.

This year's report has, for the first time, split the polypharmacy indicators out into four categories, antidepressants, mood stabilisers, anxiolytics (inclusive of all drugs that might be captured as sedatives, hypnotics or anxiolytics) and antipsychotics. With the exception of antipsychotic polypharmacy which showed improvement (a slight downward trend), trended data is not available. However, polypharmacy is common and variation across HCOs obvious.

Seclusion reduction remains a focus for mental health services. There has been no observable change in the rates of seclusion per 1,000 occupied bed days (a meaningful indicator in acute hospitals) but there has been a reduction in the proportion of patients (a meaningful indicator in extended stay hospitals) secluded during an inpatient stay. However, in those HCOs who reported physical and mechanical restraint there has been a deterioration with increasing rates reported.

With the exception of suicide in an inpatient facility (which remains a very uncommon event at 1-2 per 10,000 admitted patients) trended data is not available as this year the critical incident indicators have been reported as incidents per 1,000 occupied bed days rather than as a proportion of patients affected.

The summary position in this years report is not good news and suggests that the most important aspect of this work, reflection and improvement is not moving as expected. Of 23 process indicators two improved and six deteriorated and of the 6 outcome indicators none improved and none deteriorated. However, it is only a few years on from a major revision of this data set and I remain optimistic that the information produced will drive a journey to consistent evidence based care.

REFERENCES

1. Philip Burgess, Jane Pirkis & Tim Coombs (2015) Routine outcome measurement in Australia, International Review of Psychiatry, 27:4, 264-275

MENTAL HEALTH

SUMMARY OF RESULTS

In 2018 there were 1,591 submissions from 93 HCOs for 27 CIs. Three were analysed for trend, 1 of which improved and 2 deteriorated. In 2018, significant stratum differences were observed in 5 CIs. Eighteen CIs showed greater systematic variation, with centile gains in excess of 50% of all events. Outlier gains in excess of 25% were observed in 16 CIs. See Summary of Indicator Results below.

Table of Indicator Results Results

Indicator	Aggregate rate %	Best Stratum	Outlier HCOS (%)*	Outlier Gains (%)+	Centile Gains (%)+	Events#	Trend
Diagnosis and care planning							
1.1 Individual care plan (H)	86.0		15 (22%)	3,787 (34%)	10,526 (95%)	11,077	↑✓
1.2 Individual care plan signed by consumer (H)	74.6		17 (36%)	2,528 (30%)	6,233 (73%)	8,556	
1.3 Individual care plan signed by carer (H)	30.7		12 (38%)	1,387 (17%)	5,122 (61%)	8,367	↓✗
Physical examination of patients							
2.1 Physical examination documented within 24 hours of admission (H)	79.2	NSW	10 (18%)	3,033 (40%)	7,002 (92%)	7,592	
Prescribing patterns							
3.1 Discharged on 2 or more psychotropic medications from sub-group I (Antidepressants) (L)	30.3		6 (25%)	430 (19%)	765 (34%)	2,263	
3.2 Discharged on 2 or more psychotropic medications from sub-group II (Mood Stabilisers) (L)	10.5		4 (27%)	261 (43%)	407 (67%)	612	
3.3 Discharged on 2 or more psychotropic medications from sub-group III (Sedatives, Hypnotics or Anxiolytics) (L)	22.5	NSW	4 (24%)	455 (32%)	1,062 (75%)	1,424	
3.4 Percentage of patients who receive written and verbal information on regular psychotropic medicines initiated during their admission (including antipsychotics) (H)	84.1		7 (47%)	325 (55%)	530 (90%)	586	↓✗
3.5 Discharged on 2 or more antipsychotic medications (L)	26.4	NSW	6 (18%)	697 (24%)	1,357 (47%)	2,898	↓✓
3.6 Metabolic side effects for consumers commencing antipsychotic medications (H)	82.0		6 (43%)	227 (45%)	476 (93%)	510	
3.7 Metabolic side effects for consumers taking regular antipsychotic medications (H)	84.2		4 (29%)	196 (33%)	523 (88%)	597	↑✓
Electroconvulsive therapy							
4.1 ECT treatments (L)	10.9		19 (58%)	635 (34%)	1,185 (64%)	1,842	

Number of undesirable or non-compliant events
+ % of events accounted for by outlier/centile gains
*% of HCOs that are outliers

MENTAL HEALTH

Table of Indicator Results continued

Indicator	Aggregate rate %	Best Stratum	Outlier HCOS (%)*	Outlier Gains (%)+	Centile Gains (%)+	Events#	Trend
Use of seclusion and restraint							
5.1 Average duration of seclusion episodes (Hours per episode) (L)	42.0^						
5.2 Rate of seclusion (Seclusion episodes per 1,000 bed days) (L)	4.8@			437 (36%)	943 (78%)	1,210	
5.3 Percent of persons secluded (L)	3.9		7 (39%)	144 (34%)	241 (56%)	429	↓ ✓
5.4 Physical restraint - 1 or more episodes (L)	4.8		7 (32%)	166 (28%)	330 (56%)	592	↑ ✗
5.5 Rate of physical restraint (per 1,000 bed days) (L)	3.6@		4 (40%)	134 (54%)	207 (83%)	249	
5.6 Mechanical restraint - 1 or more episodes (L)	0.33		1 (6%)	16 (43%)	31 (84%)	37	↑ ✗
5.7 Rate of mechanical restraint (per 1,000 bed days) (L)	3.5@				1 (50%)	2	
Major critical incidents							
6.1 Percent of consumers who die by suicide (L)	0.013@					12	
6.2 Rate of suicide (per 1,000 bed days) (L)	0.002@					1	
6.3 Consumers who assault (per 1,000 bed days) (L)	0.59@	Private	6 (14%)	126 (68%)	181 (97%)	186	
6.4 Consumers assaulted (per 1,000 bed days) (L)	0.27@	Private	5 (13%)	55 (69%)	76 (95%)	80	
6.5 Sexual assault (per 1,000 bed days) (L)	0.017@					5	
6.6 Significant self-harm (per 1,000 bed days) (L)	0.21@		5 (8%)	25 (29%)	62 (73%)	85	
Mental Health Act status							
7.1 Involuntary admission status (N)	16.8						↓
7.2 Consumers detained as involuntary patients (per 1,000 bed days) (L)	No data submitted in 2019						
Continuity of care							
8.1 Discharge summary / letter provided to consumer or nominated carer (H)	78.5		13 (28%)	3,096 (41%)	6,343 (84%)	7,541	↑ ✓
8.2 Discharge summary / letter provided to service providing ongoing care (H)	74.4		15 (35%)	2,930 (37%)	6,330 (81%)	7,849	↓ ✗
8.3 Three-monthly multidisciplinary review (H)	89.0		1 (11%)	47 (54%)	80 (92%)	87	↓ ✗
Community care							
9.1 Consumers seen face-to-face by community service (N)	88.2						

Number of undesirable or non-compliant events
+ % of events accounted for by outlier/centile gains
*% of HCOs that are outliers
^ Hours per episode
@ per 1,000 bed days (L)

GENERAL COMMENTS

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This year the clinical indicators are very pleasing with continuation of downward trends for unplanned overnight admissions and readmissions after cataract surgery, anterior vitrectomy as part of cataract surgery and readmission after retinal detachment surgery. It is noted that there is wide variation between institutions for both unplanned admission after cataract surgery and anterior vitrectomy as part of cataract surgery, and institutions could use both as internal quality metrics.

Pleasingly there were very few cases of both toxic anterior segment syndrome and admissions for endophthalmitis after cataract surgery. Very few patients required unplanned readmission after glaucoma surgery.

It is interesting that the rate of unplanned re-operation after retinal detachment surgery remains stable, and this is related to a lack of major technical advances in surgical management of retinal detachment. It is interesting that the median rate of re-operation is overall higher in NSW than in the rest of the country, and the mechanisms of data collection in centres across the country should be examined.

Microinvasive glaucoma surgery continues to become a more popular treatment for glaucoma, and it is hoped that in coming years we will find reductions in glaucoma progression and in requirements for anti-hypertensive eye drops and more invasive glaucoma surgery as a result. There are a few large centres which continue to perform a large proportion of non-microinvasive glaucoma surgery, and it is likely that these are specialist centres that concentrate on treatment of more severe glaucoma.

From the perspective of guiding improvements in safety, potentially the most significant finding of this year's ophthalmic clinical indicators relates to the provision of perioperative antibiotic prophylaxis for cataract surgery. While this rate is very high overall, it is noteworthy that there are some major centres with low rates of prophylaxis. It is likely that these centres could reduce the risk of post-operative endophthalmitis by adhering to guidelines. The Australian Commission on Safety and Quality in Health Care recommends an intracameral injection of antibiotics at the time of cataract surgery[1]. It should be noted that there is some controversy regarding the ideal antibiotic regime to use in Australia[2].

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OPHTHALMOLOGY

SUMMARY OF RESULTS

In 2019 there were 697 submissions from 58 HCOs for 17 CIs. Eight were analysed for trend, 5 of which improved, 2 deteriorated and the remainder showed no evidence of trend. In 2019, significant stratum variation was observed in 5 CIs. Ten CIs showed greater systematic variation, with centile gains in excess of 50% of all events. Outlier gains in excess of 25% of all events were observed in 3 CIs. See Table of Indicator Results below.

Table of Indicator Results

Indicator	Aggregate rate %	Best Stratum	Outlier HCOS (%)*	Outlier Gains (%)+	Centile Gains (%)+	Events#	Trend
Cataract surgery							
1.1 Cataract surgery - unplanned readmissions within 28 days (L)	0.11		2 (4%)	14 (26%)	32 (59%)	54	↓✓
1.2 Cataract surgery - treatment within 28 days due to endophthalmitis (L)	0.008					4	
1.3 Cataract surgery - unplanned overnight admission (L)	0.098		3 (7%)	15 (31%)	40 (83%)	48	↓✓
1.4 Cataract surgery - anterior vitrectomy (L)	0.38	Private	5 (10%)	42 (20%)	117 (55%)	211	↓✓
1.5 Cataract surgery - antibiotic prophylaxis (H)	93.8		4 (15%)	1,520 (75%)	2,034 (100%)	2,036	
1.6 Cataract surgery - toxic anterior segment syndrome (TASS) (L)	0.007					2	
1.7 Cataract surgery - planned second eye cataract surgery (L)	0.12		1 (14%)	7 (78%)	8 (89%)	9	
Intraocular glaucoma surgery							
2.1 Intraocular glaucoma surgery - unplanned readmissions within 28 days (L)	0.95	NSW	1 (5%)	9 (50%)	16 (89%)	18	
2.2 Intraocular glaucoma surgery - micro-invasive glaucoma surgery (MIGS) (H)	78.2		2 (13%)	81 (25%)	208 (65%)	321	
2.3 Intraocular glaucoma surgery - treatment within 28 days due to endophthalmitis (L)	0					-	
2.4 Intraocular glaucoma surgery - more than one overnight stay (L)	0					-	

Number of undesirable or non-compliant events
+ % of events accounted for by outlier/centile gains
* % of HCOs that are outliers

OPHTHALMOLOGY

Table of Indicator Results continued

Indicator	Aggregate rate %	Best Stratum	Outlier HCOS (%)*	Outlier Gains (%)+	Centile Gains (%)+	Events#	Trend
Retinal detachment surgery							
3.1 Retinal detachment surgery - readmissions within 28 days (L)	3.11		1 (8%)	9 (16%)		58	↓✓
3.2 Retinal detachment surgery - treatment within 28 days due to endophthalmitis (L)	0.037					1	
3.3 Retinal detachment surgery - more than one overnight stay (L)	0					-	
3.4 Retinal detachment surgery - unplanned reoperation within 28 days (L)	2.5		2 (14%)	13 (27%)		49	
Toric intraocular lens implantation							
4.1 Intraocular lens implantation with planning record present at time of surgery (H)	99.7	Metro-politan	1 (4%)	95 (97%)	98 (100%)	98	↓✗
4.2 Toric intraocular lens implantation with planning record present at time of surgery (H)	99.9		1 (5%)	7 (88%)	8 (100%)	8	↓✗

Number of undesirable or non-compliant events
+ % of events accounted for by outlier/centile gains
* % of HCOs that are outliers

GENERAL COMMENTS

Dr Hugo Sachs
Past President, Australian Dental Association
Chair, ACHS Oral Health Working Party Version 4

In general, there are no significant variations of concern. There have been some improvements in outcomes for various indicators and some declines. It is impossible to pin point the causatives for both scenarios using this analysis. I note that there is reference to the 11th edition of the Australian Dental Schedule which has been superseded by the 12th edition (introduced in April 2017) and is currently being reviewed for the 13th edition. Cognisance of these changes should be taken into account for future reviews.

Minimum intervention dentistry (MID), particularly the use of concentrated remineralisation and/or cariostatic agents, application – single tooth (Item 123) has been recognised in the latest review (4th) of the Dental Benefits Act. This item number has also been included in the Child Dental Benefits Schedule. MID has increasing usage in paediatric dentistry and gerodontics. The clinical indicator review may provide an avenue for investigating the effectiveness of this type of treatment as well as providing a comparison between invasive and non-invasive (restorative) dental treatment regimens.

The vast majority of clinical data comes from the public sector institutions. Mechanisms to increase private sector involvement should be investigated. I am concerned that completion rates for example of endodontic treatment within 6 months remains less than 70%. This has been a consistent figure over the years and one that I consider to be unsatisfactory.

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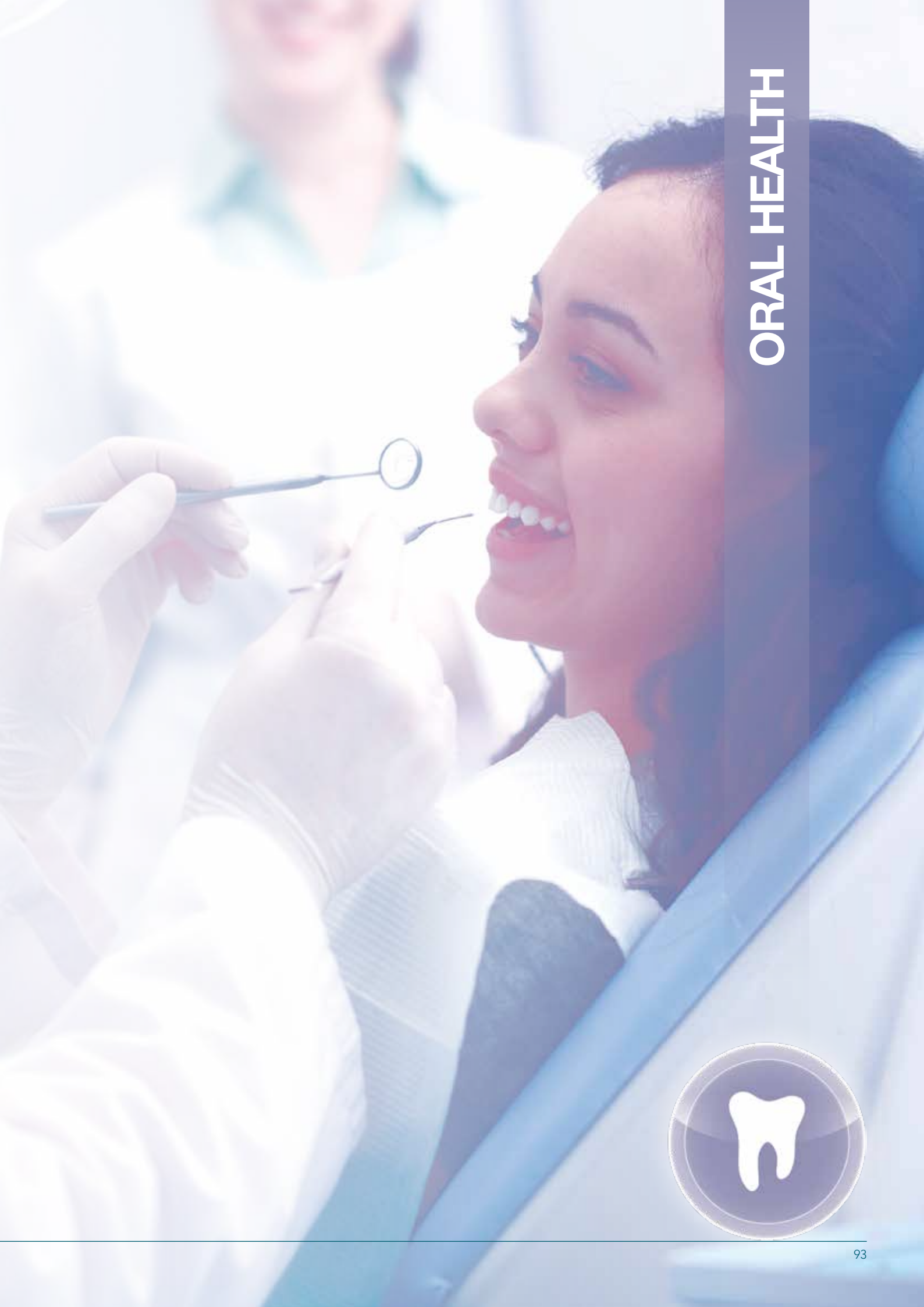
ORAL HEALTH



ORAL HEALTH

SUMMARY OF RESULTS

In 2019 there were 969 submissions from 85 HCOs for 9 CIs. Five were analysed for trend, 4 of which improved and 1 deteriorated. In 2019, significant stratum variation was observed in 2 CIs. One CI showed greater systematic variation, with centile gains in excess of 50% of all events. Outlier gains in excess of 25% of all events were observed in 0 CIs. See Table of Indicator Results below.

Table of Indicator Results

Indicator	Aggregate rate %	Best Stratum	Outlier HCOS (%)*	Outlier Gains (%)+	Centile Gains (%)+	Events#	Trend
Unplanned returns to the dental centre							
1.1 Restorative treatment - teeth retreated within 6 months (L)	6.6		11 (17%)	1,794 (8%)	7,516 (34%)	21,856	↑ ✗
1.2 Routine extraction - complications within 7 days (L)	1.3		8 (13%)	142 (11%)	614 (48%)	1,290	
1.3 Surgical extraction - complications within 7 days (L)	2.6		6 (15%)	44 (16%)	99 (36%)	274	
1.4 Denture remade within 12 months (L)	2.4		4 (10%)	95 (14%)	402 (60%)	674	↓ ✓
Endodontic treatment							
2.1 Endodontic treatment - same tooth within 6 months of initial treatment (H)	69.6	Qld	3 (6%)	483 (23%)	869 (41%)	2,104	
2.2 Endodontic treatment - teeth extracted within 12 months (L)	2.9				23 (12%)	197	
Children's dental care							
3.1 Restorative treatment (children) - teeth retreated within 6 months (L)	2.1		6 (8%)	472 (10%)	1,616 (33%)	4,860	↓ ✓
3.2 Pulpotomy (children) - deciduous teeth extracted within 6 months (L)	2.7		1 (2%)	3 (2%)	27 (21%)	129	↓ ✓
3.3 Fissure sealant treatment (children) - retreatment within 24 months (L)	2.4		18 (25%)	697 (7%)	1,674 (18%)	9,379	↓ ✓
Radiographs							
4.1 Bite-wing radiographs that meet the specified criteria (H)	No data since 2015						

Number of undesirable or non-compliant events
+ % of events accounted for by outlier/centile gains
* % of HCOs that are outliers

GENERAL COMMENTS

Dr Sharon Anne McAuley
Paediatric and Child Health Division, Royal Australasian College of Physicians
Paediatric Medical Lead, Patient Safety & Quality Service, Clinical Excellence Queensland
Member, ACHS Paediatrics Working Party Version 5

The recent revisions resulting in Version 5.1 are very welcome: the Clinical Indicator (CI) set is clinically more relevant, generating some useful comparative data. Shifting the focus from paediatric asthma presenting through Emergency Departments to capturing the number of asthma action plans completed provides cleaner quality data, avoiding potential blurring of diagnoses such as pre-school wheeze/viral-induced wheeze. This would improve the ability for organisations to compare their surrogate markers of good asthma care.

It is disappointing that less HCOs are contributing to the eight-year data set, with an attrition rate of more than half of the HCOs. However, fortunately the total number of patients represented by the data has decreased negligibly. It would be interesting to understand the reasons behind this and whether the hypothesis that larger HCOs are finding the data more useful is true and what the risks might be associated with this for the smaller organisations.

CI 1.1 Registered nurses with paediatric basic life support (BLS) qualifications

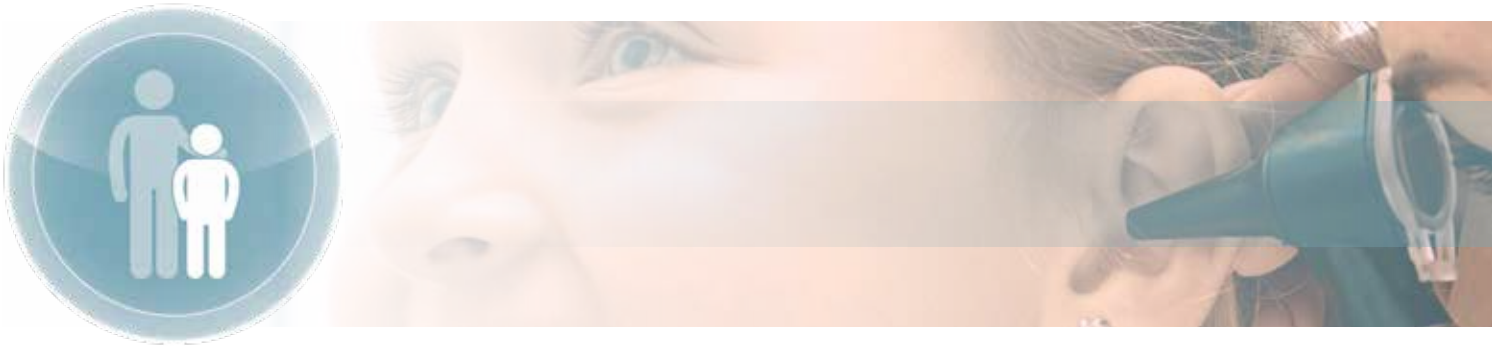
In 2019, twenty five HCOs provided data to show that of 4,629 registered nurses in Australasia, 83.5% had paediatric BLS qualifications. The fitted rate deteriorated from 94.1 in 2014 to 82.4 in 2019, a change of 11.7 per 100 registered nurses having the essential qualifications. This downward trend provides useful data to highlight the importance of mandatory staff BLS training and the need to identify nurses who may need further support and education in BLS. Clarification regarding what constitutes BLS qualifications and whether the organisation must report on numbers of nurses trained in BLS or indeed whether they hold up-to-date BLS qualifications[1,2]. It is also worth noting that having been trained in BLS does not necessarily equate to competency in BLS provision. Therefore, data on whether the nurses have demonstrated that they are competent in BLS would be an excellent clinical indicator to help inform quality improvement initiatives. During this COVID-19 pandemic, National Safety and Quality Health Service Standard 8 (Recognising and Responding to Acute Deterioration) remains just as important for all organisations[3]. Challenges with provision of such training allowing for social distancing and safe skills acquisition need to be overcome by HCOs to ensure safe, high quality care is provided.

CI 3.1 Completed asthma action plan-paediatrics

In 2014, only three HCOs contributed data on whether patients had been provided with a completed asthma action plan[4]. This rate of contribution has been consistent over the eight-year period (except for 2014, when 4 HCOs submitted data). Such low denominators inhibit the ability for organisations to benchmark their performance. It is not clear from the report what the definition is regarding a completed plan. Does that mean a plan was filled in on paper? Electronically? Given to the patient/parent/carer? A plan may have been completed, but does that mean the family understood it let alone left with the plan? If the parents say they already have one, is another one issued? Finding a robust clinical indicator set is challenging and ideally the least cumbersome, least time-consuming method of collecting the data for the HCO e.g. electronically is preferable.

Such plans have traditionally been deemed key to providing exemplary care for patients with asthma[5,6]. Some reviews and studies, however, have shown that a formal written asthma action plan does not lead to better outcomes and may even lead to worse outcomes[7,8].

PAEDIATRICS



The actual terminology is fraught with challenges also. Asthma, as a diagnosis can be interpreted differently in different centres, by different clinicians with no clear consensus regarding age of onset[9]. Most asthma action plans generated are for pre-school wheezers and the term 'asthma' may not be used until the child is older and the clinical course/phenotype has become manifest.

Interestingly, data from the Australian Bureau of Statistics (ABS) 2017-2018 National Health Survey showed that an estimated 839,000 (31%) of people with asthma across all ages had a written asthma action plan. Children aged between 0-14 with asthma were significantly more likely to have an asthma action plan (67%)[10]. These plans could have been provided by any healthcare worker including a General Practitioner.

In the *ACIR 2012-2019*, three out of 144 HCOs in 2014 provided data on this set with 217/247 patients receiving a plan, giving a rate of 87.9%. In 2019, 123 out of 127 (96.9%) patients had a plan. We are unable to conclude that hospitals provide asthma action plans to nearly every child on discharge as the dataset is too small. Variation in clinical practice can be a poor quality indicator. However, there was relatively little variation between HCOs, with no outliers found and so potential gains in quality were small in 2019. This information could help organisations when choosing where to focus their efforts in the quality improvement sphere.

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PAEDIATRICS

GENERAL COMMENTS

Ms Sandra Miles
Senior Lecturer, Australian Catholic University
Australian College of Children and Young People's Nurses

The clinical indicators comprise an important set of indicators of the state of paediatric hospital care. Please see my comments about some specific indicators.

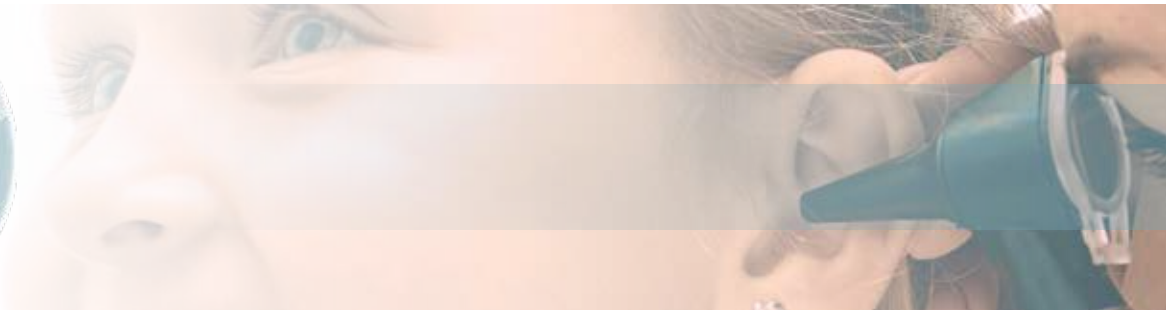
1.1 Registered nurses with paediatric basic life support qualifications (H)
This is a very important requirement for paediatric care. It is pleasing to see an increase in numbers, however an annual rate of 83.5 per 100 registered nurses is disappointing given that this is usually a yearly mandatory qualification.

On another note, however, BLS is not usually effective. It is often too late when a child required BLS. Better monitoring and early intervention prevent the need for BLS. We propose it would be ideal to add a further/better indicator - to include the number of registered nurses who have undertaken training/qualification in a course related to recognising deterioration in a paediatric patient. Children can physiologically compensate for many adverse conditions until a crisis point and sudden deterioration is reached. Many hospitals have implemented the use of early warning system tools (e.g. modified early warning system [MEWS] or paediatric early warning score [PEWS]) to assist staff to recognise the subtle signs of deterioration, signalling when a patient should be reviewed and changes to care implemented. For example, please see the overview in the work by Chapman et al (2019)[1].

1.2 Medical practitioners with paediatric basic life support qualifications (H)
It is curious that 100% of medical practitioners have completed BLS qualifications compared to 83.5% of registered nurses. The difference in the rates of BLS training between medical and nursing staff warrants investigation. It would be beneficial for all RN staff to complete BLS qualifications, including regular refresher training.

3.5 Medical discharge summary completed - paediatrics (H)
The annual rate of 61.4 per 100 separations is fairly low when one considers how important this summary is for ongoing focused care for that child. A discharge summary can be commenced on admission to hospital with additions made during the hospitalisation, so that an additional overall summary statement is required on discharge. This helps inform GPs and other health care professionals of important ongoing considerations for care, so its importance should be emphasised across HCO.

REFERENCES
1. Chapman SM, Maconochie IK. Early warning scores in paediatrics: an overview. Arch Dis Child 2019;104:395–399.



SUMMARY OF RESULTS

In 2019 there were 170 submissions from 39 HCOs for 14 CIs. Four were analysed for trend, 3 of which improved and 1 deteriorated. In 2019, significant stratum variation was observed in 4 CIs. Ten CIs showed greater systematic variation, with centile gains in excess of 50% of all events. Outlier gains in excess of 25% of all events were observed in 9 CIs. See Table of Indicator Results below.

Table of Indicator Results

Indicator	Aggregate rate %	Best Stratum	Outlier HCOS (%)*	Outlier Gains (%)+	Centile Gains (%)+	Events#	Trend
Appropriateness							
1.1 Registered nurses with paediatric basic life support qualifications (H)	83.5	NSW	4 (16%)	320 (42%)	686 (90%)	765	↓ ✗
1.2 Medical practitioners with paediatric basic life support qualifications (H)	100.0					-	
1.3 Paediatric patients admitted to a paediatric ward/area (H)	95.1		3 (25%)	510 (44%)	1,168 (100%)	1,169	↑ ✓
Adverse events							
2.1 Medication errors (L)	0.3	Private	4 (13%)	74 (57%)	125 (96%)	130	
2.2 Adverse events when not in a paediatric ward/area (L)	1.3		1 (20%)	23 (70%)	32 (97%)	33	
2.3 Adverse events in a paediatric ward/area (L)	0.9	Private	2 (9%)	145 (55%)	259 (98%)	264	↓ ✓
Documentation							
3.1 Completed asthma action plan - paediatrics (H)	96.9				3 (75%)	4	
3.2 Paediatric surgery post-procedural report (H)	100.0					-	
3.3 Physical assessment completed by medical practitioner and documented (H)	100.0					-	
3.4 Physical assessment completed by registered nurse and documented (H)	100.0					-	
3.5 Medical discharge summary completed - paediatrics (H)	61.4		1 (25%)	386 (45%)	767 (88%)	867	

Number of undesirable or non-compliant events
+ % of events accounted for by outlier/centile gains
* % of HCOs that are outliers

PAEDIATRICS

Table of Indicator Results continued

Indicator	Aggregate rate %	Best Stratum	Outlier HCOS (%)*	Outlier Gains (%)+	Centile Gains (%)+	Events#	Trend
Paediatric anaesthesia							
4.1 Paediatric patients who fast 6 hours prior to anaesthesia (H)	69.1		2 (67%)	51 (44%)	115 (99%)	116	
4.2 Adverse event due to non-adherence to paediatric fasting guidelines (L)	0.0					-	
4.3 Parent/guardian present at induction of anaesthesia (N)	100.0						

Number of undesirable or non-compliant events
+ % of events accounted for by outlier/centile gains
* % of HCOs that are outliers

GENERAL COMMENTS

Dr Daman Langguth
Chair, Board of Professional Practice and Quality, Royal College of Pathologists of Australia
ACHS Chair, Working Party for Pathology Version 5

The Royal College of Pathologists of Australasia (RCPA) has been pleased to work with The Australian Council on Healthcare Standards (ACHS) in enabling assessment of the performance of pathology services in Australian healthcare.

Chemical Pathology

There has been a significant fall in the numbers of samples being reported out from the lab within the specified time for both potassium and troponin while the sample to lab time has remained stable. The number of labs that report in the program has reduced. This result is disappointing and reporting entities should examine the reason for the above decline.

Haematology

There has been a decline in the measures of in lab performance with no change in the time taken for the sample to reach the laboratory. There is wide variation from reporting entities. This should be examined by HCOs with large numbers of samples that neither meet the standard nor have the processes for performance improvement. The number of blood group samples required to be recollected also increased. This will need to be addressed.

Anatomical Pathology

Pleasingly there has been a continued trend in improvement in all measures to a very high standard in AP.

Microbiology

Overall the data remains stable on microbiology collection and reporting though there is a little concern that the time taken for a urine collection to the laboratory continues to decline below the 60th percentile.

Point of Care

There is a high degree of conformance with the point of care standard.

Misidentified samples

Overall there is an increase in samples with identification issues though outlier reporting units may well have affected that rate. This variation in performance needs to be examined and plans put in place to remedy the situation.

I would like to acknowledge the contributions of the representatives of ACHS that enable us to report these findings for pathology.

PATHOLOGY

SUMMARY OF RESULTS

In 2019 there were 393 submissions from 25 HCOs for 16 CIs. Sixteen CIs were analysed for trend, of which 6 improved, 8 deteriorated, and the remainder showed no evidence of trend. In 2019, significant stratum variation was observed in 2 CIs. Ten CIs showed greater systematic variation, with centile gains in excess of 50% of all events. Outlier gains in excess of 25% of all events were observed in 8 CIs. See Table of Indicator Results below.

Table of Indicator Results

Indicator	Aggregate rate %	Best Stratum	Outlier HCOS (%)*	Outlier Gains (%)+	Centile Gains (%)+	Events#	Trend
Chemical pathology							
1.1 Serum / plasma potassium for ED - in lab to validated time less than 40 minutes (H)	49.2	NSW	8 (38%)	7,198 (17%)	18,654 (45%)	41,914	↓ ✗
1.2 Serum / plasma potassium from ED - collected to in lab time less than 60 minutes (H)	87.3		9 (43%)	6,057 (58%)	9,211 (88%)	10,467	↑ ✓
1.3 Serum / plasma troponin for ED - in lab to validated time less than 50 minutes (H)	64.0		6 (30%)	1,805 (16%)	4,962 (43%)	11,579	↓ ✗
1.4 Serum / plasma troponin from ED - collected to in lab time less than 60 minutes (H)	83.4		8 (42%)	2,058 (41%)	4,225 (84%)	5,045	↓ ✗
Haematology							
2.1 Haemoglobin for ED - in lab to validated time less than 40 minutes (H)	90.9	Metropolitan	9 (43%)	1,827 (24%)	4,078 (54%)	7,563	↓ ✗
2.2 Haemoglobin from ED - collected to in lab time less than 60 minutes (H)	88.9		8 (38%)	5,501 (54%)	9,022 (88%)	10,204	↑ ✓
2.3 Blood group for ED - in lab to validated time less than 60 minutes (H)	47.6		4 (31%)	468 (17%)	1,222 (44%)	2,785	↓ ✗
2.4 Blood group from ED - collected to in lab time less than 60 minutes (H)	86.8		4 (29%)	515 (53%)	848 (88%)	967	↑ ✓
2.5 Blood group from ED - recollections (L)	7.6		1 (8%)	75 (19%)	156 (39%)	396	↑ ✗

Number of undesirable or non-compliant events
+ % of events accounted for by outlier/centile gains
* % of HCOs that are outliers

PATHOLOGY

Table of Indicator Results continued

Indicator	Aggregate rate %	Best Stratum	Outlier HCOS (%)*	Outlier Gains (%)+	Centile Gains (%)+	Events#	Trend
Anatomical pathology							
3.1 AP complexity level 4 MBS item - received to validated time less than 96 hours (H)	79.6		7 (58%)	811 (20%)	3,674 (88%)	4,152	↑ ✓
3.2 AP complexity level 6 & 7 MBS item - received to validated time less than 7 days within a calendar month (H)	78.7		2 (18%)	28 (11%)	104 (41%)	251	
3.3 Structured reporting for Anatomical Pathology (H)	97.8		1 (17%)	3 (50%)	5 (83%)	6	↑ ✓
Microbiology							
4.1 Urine microscopy for ED - in lab to validated time less than 4 hours (H)	90.9		4 (44%)	358 (49%)	580 (80%)	729	↑ ✓
4.2 Urine microscopy from ED - collection to in lab time less than 60 minutes (H)	60.3		4 (40%)	1,401 (43%)	2,869 (89%)	3,241	↓ ✗
4.3 HIV antigen-antibody screening - in lab to validated time less than 24 hours (H)	78.9		1 (10%)	91 (14%)	166 (25%)	669	
Whole of service							
5.1 Point of care testing register (N)	83.3						
5.2 Misidentified episodes (L)	0.46		4 (27%)	1,058 (34%)	1,716 (55%)	3,122	↑ ✗

Number of undesirable or non-compliant events
+ % of events accounted for by outlier/centile gains
* % of HCOs that are outliers

GENERAL COMMENTS

A/Prof Jeremy Millar
Royal Australian and New Zealand College of Radiologists
Chair, Quality Improvement Committee, Faculty of Radiation Oncology,
Royal Australian and New Zealand College of Radiologists
Chair, ACHS Radiation Oncology Working Party Version 5

The quality indicators reported in this year's *Australasian Clinical Indicator Report* are positive and reflect well on the participating radiation oncology units. Reported multidisciplinary meeting discussion is higher this year than last year. Overall, almost half of patients are discussed in MDMs (compared with just over 40% last year). Waiting times have improved over the last eight years, albeit probably stabilising over the last few years. There are high rates of appropriate tumour staging. Rates of peer-review of plans have increased over the two years we have data. Rates of hypofractionation for bone metastases are increasing. Motion management is increasingly commonly employed during treatment delivery, and, as suggested by multiple randomised controlled trials, long-term androgen deprivation is increasingly used as an adjunct to radical radiation therapy for localised high-risk prostate cancer.

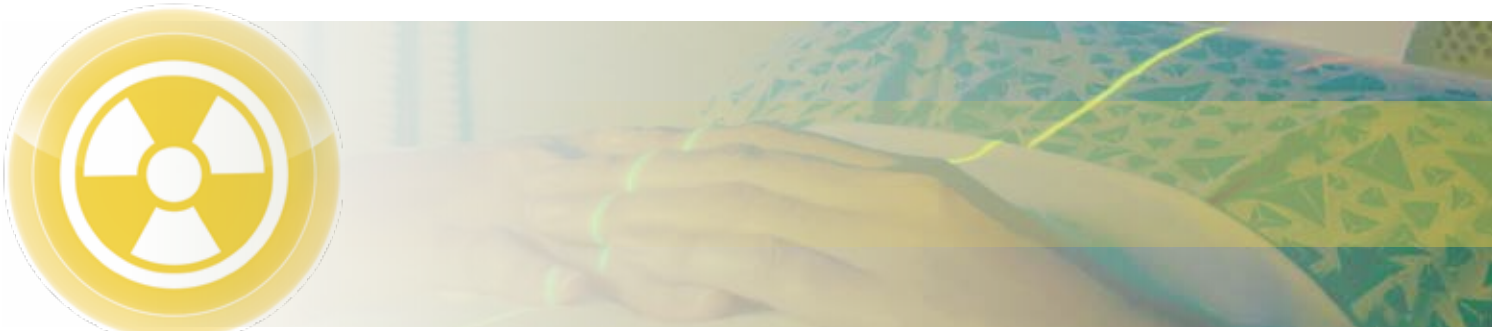
One clinical indicator in which there nominally seems to have been a deterioration is in treatment prolongation. This is a new indicator, developed for the fifth version of the Radiation Oncology clinical indicator sets. In 2018, 11.2% of patients having radical radiation therapy for a Royal College of Radiologists "category 1" cancer had more than two days prolongation in their prescribed treatment. In 2019, this was 12.8%. This difference is too small to conclude that the proportion of category treatment prolongations is actually worsening (Pearson Chi-square statistic 0.56, p=0.455).

The last two years of data allow us to review the utility of the new clinical indicators in version 5, introduced for use for the first time in 2018. These indicators appear to be useful measures of performance. They are defined based on high-level evidence that they measure something that is related to better patient outcomes. The results we see on average have "face validity". There is significant variation between reporting institutions, and there would appear to be room for improved performance in them all.

All is not perfect with this data. The number of reporting units is low, compared with the total in Australia. This raises questions as to the generalisability of the observations. These units might be self-selecting centres of relative excellence, where the leadership takes an interest in measuring performance and commits resources to contribute to these benchmarking efforts. There is a 'chicken-and-egg' aspect to participation in this quality improvement project: more units would see and feel a benefit of participation if more units participated.

This is missing a point, in the end. Clinicians concerned about the quality of the work they do to look after patients need to be motivated. This cannot only be via governments and standards commissions, fear of legal liability, or employer quality officers. "Zen and the Art of Motorcycle Maintenance" reminds us: "further improvement of the world will be done by individuals making quality decisions and that's all". We all have to play our own part, and care about quality. These clinical indicators are a small but important part of the complicated whole.

RADIATION ONCOLOGY



GENERAL COMMENTS

Ms Rachel Kearvell

Professional Standards Committee, Australian Society of Medical Imaging and Radiation Therapy
Member, ACHS Radiation Oncology Working Party Version 5

The Australian Institute of Health and Welfare collate data annually on waiting times from almost all radiation therapy providers in Australia. Intention of treatment is defined in this national minimum dataset as either prophylactic, curative or palliative[1]. Clinical indicators that align with this nomenclature may be more appropriate as "radical" is an old-fashioned term that nowadays more commonly describes the complexity of a treatment plan as opposed to the intent.

Treatment plan peer review had a low number of HCOs provide data for this clinical indicator (CI). Anecdotally this may be due to the difficulty in retrieving this data from the HCOs' patient information system. If discussion at peer review is not documented in the patient information system in such a way as to enable easy extraction via a query of the database, HCOs may choose to not respond to this CI as to do so is too time consuming.

The 2015 consensus guidelines developed by the ANZ Faculty of Radiation Oncology Lung Interest Cooperative (FROLIC) include the use of 4DCT as the preferred method of motion management for non-small cell lung cancer[2]. A 2016 survey of radiation therapy centres in Australia reported that 97% of respondents used PET images to assist with motion management in treatment planning[3].

Since then, there have been a myriad of papers published extolling the virtue of 4DCT to delineate lung tumour volumes for radiation therapy planning. As a result, the prevalence of 4DCT is becoming increasingly more common among radiation oncology sites across Australia. Mandated use of motion management techniques in clinical trials particularly for stereotactic lung (CHISEL, SAFRON), may have also helped increase the uptake and installation of CT scanners with this functionality. It is therefore pleasing to see that the rate for CI 3.2 Motion management has increased accordingly.

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1. meteor.aihw.gov.au/content/index.phtml/itemId/583857
2. Dwyer, P et al. Australia and New Zealand Faculty of Radiation Oncology Lung Interest Cooperative: 2015 consensus guidelines for the use of advanced technologies in the radiation therapy treatment of locally advanced non-small cell lung cancer. Journal of Medical Imaging and Radiation Oncology 60(50 Oct 2016.
3. Batumalai, V et al. Survey of image guided radiation therapy use in Australia. Journal of Medical Imaging and Radiation Oncology 61(3) Nov 2016.

RADIATION ONCOLOGY

SUMMARY OF RESULTS

In 2019 there were 80 submissions from 8 HCOs for 9 CIs. Two were analysed for trend, 1 of which improved, 1 deteriorated. In 2019, significant stratum variation was observed in none of the CIs. Five CIs showed systematic variation, with centile gains in excess of 50% of all events. Outlier gains in excess of 25% of all events were observed in 3 CIs. See Table of Indicator Results below.

Table of Indicator Results

Indicator	Aggregate rate %	Best Stratum	Outlier HCOS (%)*	Outlier Gains (%)+	Centile Gains (%)+	Events#	Trend
Consultation process							
1.1 Patients for radical treatment - waiting time from the 'ready for care' date more than the faculty guidelines (L)	9.4		3 (38%)	167 (25%)	262 (39%)	675	↓✓
1.2 Patients for palliative treatment - waiting time from the 'ready for care' date more than the faculty guidelines (L)	11.6		4 (50%)	217 (38%)	329 (57%)	575	
1.3 Multidisciplinary meeting involvement (H)	48.6				39 (12%)	323	
Treatment process							
2.1 Staging annotation for current radiotherapy course (H)	90.9		2 (33%)	87 (24%)	330 (91%)	364	↓✗
2.2 Treatment prolongation (L)	12.8		1 (25%)	11 (19%)	36 (61%)	59	
2.3 Treatment plan peer review (H)	39.5				22 (18%)	121	
Treatment delivery							
3.1 Single fractionation for bone metastases (H)	43.7				40 (33%)	120	
3.2 Motion management (H)	83.7		1 (17%)	9 (26%)	32 (94%)	34	
3.3 Androgen deprivation therapy (H)	81.7		1 (17%)	10 (36%)	18 (64%)	28	

Number of undesirable or non-compliant events
+ % of events accounted for by outlier/centile gains
* % of HCOs that are outliers

GENERAL COMMENTS

In 2019 there were twenty three HCOs submitting data on the Radiology Clinical Indicators. There were no events in either interventional radiology or diagnostic radiology which were of the highest severity assessment code of SAC1. Although some events were reported as SAC2 (a lower risk event), the number of adverse events were low, reflecting high performance amongst the HCOs submitting data.

Extravasation during an intravenous contrast CT procedure is one of the risks when receiving contrast agents. The data from the submitting HCOs indicates that there is an increasing variability amongst the cohort, but the overall rate remains low. There is a large amount of case-mix risk with extravasation, so it is likely that these factors contribute to the variability within the set.

The number of organisations submitting data on image guided biopsy adverse events remains low and greater encouragement for HCOs to measure these incidents should be explored in future. It is vital to collect data on these imaging incidents as these should help to identify contributing and ameliorating factors that can reduce the likelihood of recurrence of such events in the future.

Computed Tomography (CT) dosimetry is used to measure the dose index of radiation output from CT scanners. This measurement of output is to ensure that patients are not receiving too much radiation during their imaging procedures. This radiation dose should be within the reference levels in the National Diagnostic Reference Levels (NDRLs).

The radiation dose has become an important element of continuous improvement with strategies to tailor CT scans to the patient. This is an area that has improved from 2018 with the aggregate rate of head CT exams and abdominal pelvic CT exams dosing much lower in 2019, albeit still slightly above the NRDLs at 1.7% and 8.8% respectively. Significant stratum variation between states was observed in the CT head dosimetry indicator with Victoria performing best.

The identification of patients and their consent prior to procedures was excellent with all organisations having time-out procedures specific to radiological examinations; standardised processes in place to address correct patient, site and procedure; and through audit demonstrate that the appropriate processes and procedures were followed prior to any procedure from the reporting organisations. This standardisation across institutions is encouraging and is a basic measure to reduce avoidable harm to patients.

Critical test result notification is a qualitative measure to determine if an organisation has in place measures to report any result or finding that may be considered life threatening or could result in severe morbidity requiring clinical attention. This measure was more variable than patient identification and consent but was generally well adhered to with the rates of procedures and policies in place at 91.7% and 100% respectively. This is an encouraging measure that supports quality improvement and better patient care within the healthcare organisation.

RADIOLOGY

SUMMARY OF RESULTS

In 2019 there were 291 submissions from 23 HCOs for 15 CIs. None were analysed for trend. In 2019, significant stratum variation was observed in 1 CI. Five CIs showed greater systematic variation, with centile gains in excess of 50% of all events. Outlier gains in excess of 25% of all events were observed in 2 CIs. See Table of Indicator Results below.

Table of Indicator Results

Indicator	Aggregate rate %	Best Stratum	Outlier HCOS (%)*	Outlier Gains (%)+	Centile Gains (%)+	Events#	Trend
Adverse Patient Events							
1.1 Number of Severity Assessment Code (SAC) 1 or Incident Severity Rating (ISR) 1 incidents - interventional radiology examinations (L)	0					-	
1.2 Number of Severity Assessment Code (SAC) 1 or Incident Severity Rating (ISR) 1 incidents - diagnostic radiology examinations (L)	0					-	
1.3 Number of Severity Assessment Code (SAC) 2 or Incident Severity Rating (ISR) 2 incidents - interventional radiology examinations (L)	0.021				2 (33%)	6	
1.4 Number of Severity Assessment Code (SAC) 2 or Incident Severity Rating (ISR) 2 incidents - diagnostic radiology examinations (L)	0.001		1 (5%)	2 (11%)	10 (56%)	18	
1.5 Contrast extravasation during an IV contrast enhanced CT procedure (L)	0.23		3 (17%)	35 (13%)	160 (58%)	276	
1.6 Percutaneous trans pleural biopsy of lung or mediastinum requiring unexpected overnight admission (L)	3.53				9 (82%)	11	
1.7 Image-guided percutaneous core biopsy of liver requiring unexpected overnight admission (L)	0					-	

Number of undesirable or non-compliant events
+ % of events accounted for by outlier/centile gains
* % of HCOs that are outliers

RADIOLOGY

Table of Indicator Results continued

Indicator	Aggregate rate %	Best Stratum	Outlier HCOS (%)*	Outlier Gains (%)+	Centile Gains (%)+	Events#	Trend
CT Dosimetry							
2.1 CTDIvol for non-contrast CT head examinations (L)	1.7	Vic	7 (41%)	149 (60%)	141 (57%)	248	
2.2 CTDIvol for portal venous phase of abdominal pelvic CT examinations (L)	8.8		3 (18%)	49 (31%)	138 (87%)	159	
Patient identification and consent							
3.1 Patient identification and consent (1) (H)	100						
3.2 Patient identification and consent (2) (H)	100						
3.3 Patient identification and consent (3) (H)	90.9						
3.4 Patient identification and consent (4) (H)	No data submitted in 2019						
Critical test result notification							
4.1 Critical test result notification (1) (H)							
4.2 Critical test result notification (2) (H)							
4.3 Critical test result notification (3) (H)							
4.4 Critical test result notification (4) (H)	No data submitted in 2019						

Number of undesirable or non-compliant events
+ % of events accounted for by outlier/centile gains
* % of HCOs that are outliers

GENERAL COMMENTS

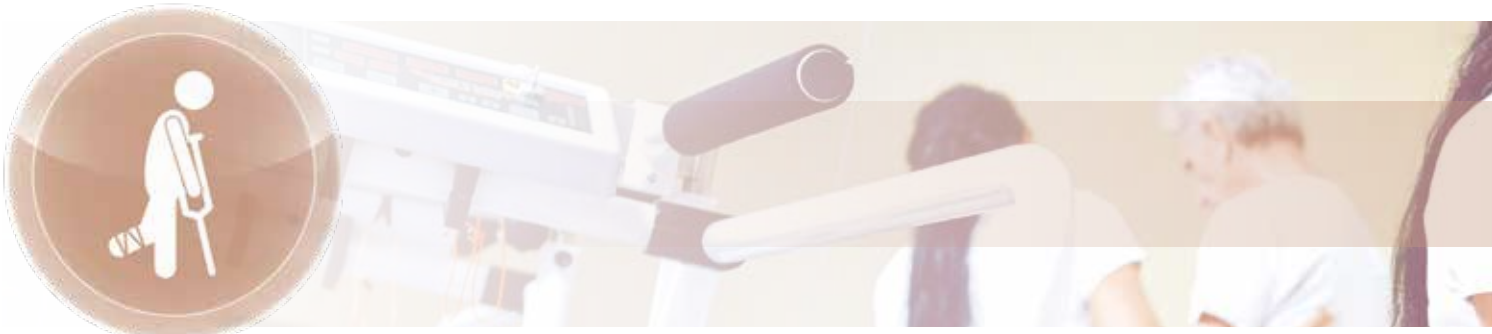
Dr Jennifer Mann
President Elect Australasian Faculty of Rehabilitation Medicine

The Australasian Faculty of Rehabilitation Medicine and the Australasian Rehabilitation Outcomes Centre (AROC) are pleased to note the high rate of compliance with the ACHS Rehabilitation Medicine Clinical Indicators (CI). This high level of compliance is in keeping with previous years and is testament to not only the ongoing strong culture of continuous improvement within the Rehabilitation Medicine community but also a continuing commitment to provide best-practice, evidence based clinical care to our population of individuals. We acknowledge that this result is due to the continued significant effort of clinicians to maintain very high compliance in provision of detailed outcome data (including data items required to calculate the CIs) to AROC.

Outcome and process measures demonstrated by these clinical indicators show a continued improvement, with few outlier data points. The 2019 data showed improvement in all six CIs.

This improvement is also reflected in shorter lengths of stay and more functional improvement for similar diagnostic groups, demonstrated by AROC benchmarking data. As appears in commentary on CI reports from previous years, it should be noted that where differences in indicator outcomes are evident between sectors (public compared with private facilities) or jurisdictions, they should be interpreted very cautiously, because these data are not casemix adjusted.

REHABILITATION MEDICINE



REHABILITATION MEDICINE

SUMMARY OF RESULTS

In 2019 there were 1,164 submissions from 124 HCOs for 6 CIs. Six were analysed for trend, 6 of which improved. In 2019, significant stratum variation was observed in 4 CIs. Six CIs showed greater systematic variation, with centile gains in excess of 50% of all events. Outlier gains in excess of 25% of all events were observed in 6 CIs. See Table of Indicator Results below.

Table of Indicator Results

Indicator	Aggregate rate %	Best Stratum	Outlier HCOS (%*)	Outlier Gains (%+)	Centile Gains (%+)	Events#	Trend
Timely assessment of function on admission							
1.1 Functional assessment within 72 hours of admission (H)	98.4		18 (17%)	772 (68%)	1,096 (97%)	1,129	↑ ✓
Assessment of function prior to episode end							
2.1 Functional assessment within 72 hours before end of rehabilitation (H)	98.9	Private	15 (15%)	329 (48%)	643 (93%)	691	↑ ✓
Timely establishment of a multidisciplinary team rehabilitation plan							
3.1 Multidisciplinary team plan within 7 days (H)	98.4		23 (22%)	629 (61%)	991 (96%)	1,031	↑ ✓
Multidisciplinary discharge documentation							
4.1 Discharge plan on separation (H)	97.6	Private	16 (16%)	1,151 (77%)	1,481 (99%)	1,501	↑ ✓
Functional gain achieved by rehabilitation program							
5.1 Functional gain following completed rehabilitation program (H)	98.2	Private	29 (24%)	418 (33%)	891 (70%)	1,273	↑ ✓
Discharge destination							
6.1 Destination after discharge from a rehabilitation program (H)	94.7	Private	31 (33%)	1,021 (34%)	1,994 (67%)	2,974	↑ ✓

Number of undesirable or non-compliant events
+ % of events accounted for by outlier/centile gains
* % of HCOs that are outliers

ABOUT THE ACHS CLINICAL INDICATOR PROGRAM

The Australian Council on Healthcare Standards (ACHS) provides the world's largest dedicated Clinical Indicator (CI) data collection and reporting service. The Clinical Indicator Program (CIP) examines data sourced from a broad range of clinical speciality areas. It includes CIs developed by specialist clinicians and as relevant to inpatient, outpatient, and community health facilities. The program is highly valued by participating healthcare organisations (HCOs) and is developed by Australian and New Zealand clinicians.

History

The ACHS CIP was established in 1989 through the initiative of Dr Brian Collopy, a surgeon and then Chairman of the ACHS Board, who still remains involved in the program today.

The rationale for introducing the program was to provide measures to support the clinical component of the ACHS accreditation standards and to increase the involvement of medical practitioners in quality improvement initiatives within HCOs. At the time of its introduction, medical staff were familiar with the use of measures to assess a patient's health status; however, there were almost no tools to assess the performance of an HCO when delivering clinical care.

The first set of CIs, the Hospital-Wide Medical CIs, was introduced in 1993 and the program has continued to evolve since its inception nearly three decades ago. The program has expanded by working in collaboration with specialist colleges, societies, and associations, to include a wide range of speciality areas, totalling 21 CI sets by 2020. The CIP is now strongly supported by all clinician groups who make significant contributions to the development and application of the CIs.

Clinical Indicators and Healthcare Organisations

CIs are designed to indicate potential problems that may need addressing, rather than to provide definitive answers for HCOs. This is achieved by identifying variations within the data results. CIs are used to assess, compare and determine the potential to improve care within an organisation. They are, therefore, a tool to assist in assessing whether or not a standard of patient care is being met and can provide evidence for accreditation. HCOs select those CIs that are relevant to their organisation.

Clinical Indicators and Accreditation

Accreditation with ACHS has always had a focus on quality improvement. The CIP continues to be free for all HCOs that are accredited by ACHS. The program is one of a number of tools that facilitate the review and improvement of HCO performance. While the data are not a focus for accreditation, assessors are able to monitor the HCO's response to an outlier measure or a deteriorating trend. HCOs and assessors are able to question what was investigated, what was learnt, what action had been, or would be, taken, and finally what was the outcome of those actions.

Supporting Clinical Indicator Program Customers

The Performance and Outcomes Service (POS) at ACHS provides email, telephone, webinar and workshop support to its members, including user access, CI collection assistance clarification on the User Manuals and generation of customised reports.

Strengths of the **CLINICAL INDICATOR PROGRAM**

- Internationally renowned
- Well established with ongoing review of CI sets
- The selection of CIs collected is determined by the HCO
- Collaboration with more than 40 Australasian healthcare colleges, societies, and associations
- CI Working Parties involve wide representation from relevant healthcare colleges, societies, and associations, assisted by consumers and statisticians to ensure relevancy
- External analysis and validation of data by University of Newcastle statisticians
- ICD coding provided (where applicable) to aid data collection
- Current literature review conducted on all new speciality areas available, providing background to the rationale for inclusion
- Developed by clinicians for clinicians to ensure relevancy and currency

ABOUT THE ACHS CLINICAL INDICATOR PROGRAM

Developed by Clinicians for Clinicians

Decisions are made on each CI set by a Working Party selected to provide broad representation. The ACHS Performance and Outcomes Service facilitate the process by providing secretariat support. When developing CIs, ACHS relies on practising clinicians from specialist areas in public and private HCOs. Members of CI Working Parties encompass relevant professions and include personnel from non-metropolitan centres and from a number of different states and territories. The Working Party Chair is selected by the lead college, society or association, which will also oversee and endorse the revised CI User Manual.

Assisting with data analysis and offering support and advice to the Working Parties is the HSRG at the University of Newcastle. Prof Robert Gibberd, who has consulted on the ACHS program for more than 17 years, is supported by Mr Stephen Hancock and a team that has made healthcare data its focus.

Comparisons of Performance

The focus when collecting CI data should always be to identify opportunities for improvement. All participating HCOs receive benchmarking reports that compare their performance to that of all other HCOs submitting data for the CI, and to HCOs from their peer group. Peer groupings are determined by the Working Party and the HCO is then able to select the most appropriate stratification for their organisation. Reports are prepared every six months following data submission. In addition, trend reports are developed annually for HCOs submitting regularly, which enable the HCOs to compare their own trended performance against that of the group overall.

By definition, 20% of all contributors of CI data must be in the poorer performing centile. If an HCO has rates in the poorest 20% of rates it is not necessarily an indicator of poor performance, especially when variation between HCO rates is relatively small. In the latter case centile gains will be relatively small. However, being in the poorer performing centile may indicate a greater opportunity for improvement.

As participation in the ACHS program is voluntary, the number of HCOs submitting data for any single CI may be small; therefore the sample may not represent the overall population. Furthermore, participating HCOs are not identified during statistical analysis, which limits comparisons between HCOs. The program's statisticians believe that, in most specialities, with greater numbers comes greater confidence that the data are representative. For this reason, ACHS reports also include outlier data which notify an HCO that their rate is more than three standard deviations from the mean. In conjunction with the centile data, outlier status provides HCOs with a realistic 'snapshot' of their performance against all other reports submitted for a specific CI.

Research in the area of organisational response to CI outcomes has identified the phenomenon of 'data denial', where HCOs are sometimes reluctant to accept the implications of CI data and reject the findings rather than investigate their implications, or seek explanations that are not associated with their own performance. Acceptance of the data as both correct and relevant is the first step towards positive action and change.[1]

It is necessary that clinicians and healthcare executives recognise that a CI result is a marker of change over time, rather than the equivalent of an 'exam result' with its designated pass/fail outcome. Although the ACHS CI reports provide data from multiple HCOs, CI data outcomes should not be considered as 'league tables'.

CIs are so named because they do not provide answers; they 'indicate'. This means an HCO's rate can raise questions for further evaluation. A considered analysis of potential reasons for trends over time and/or variation between HCOs can then be used to highlight quality issues or monitor the progress of quality improvement initiatives.

Clinical Indicator User Manuals

The ACHS CI User Manuals contain greater information about the CIs. Members can access the User Manuals from the ACHS website. The User Manuals include information such as:

- the rationale for CI development
- suggested sources for data collection (including ICD-10-AM codes where applicable)
- desired rates (i.e. whether the organisation should be aiming for a high or low rate)
- stratification variables
- data cleaning rules
- definition of terms
- numerator and denominator details including inclusion and exclusion criteria
- evidence-based information about the CI area

Accompanying resources to the User Manuals are blank templates to assist HCOs to collect their data and retain details of their collection.

REFERENCE

1. Berwick DM, James B, Coye MJ. Connections between Quality Measurement and Improvement. Medical care. 2003 Jan 1; 41 (Suppl 1): 30-38.

PREVIOUS VOLUMES IN THIS SERIES

Hospital Wide Medical Indicator Data: Quantitative and Qualitative Results 1993

Measurement of Care in Australian Hospitals 1994: Hospital-Wide Medical Indicator results and comparisons to 1993 results

Measurement of Care in Australian Hospitals 1996: Obstetrics and Gynaecology Indicators and Hospital-Wide Medical Indicators

Measurement of Care in Australian Hospitals 1997: Anaesthesia, Day procedures, Emergency Medicine, Hospital-Wide, Internal Medicine, Obstetrics and Gynaecology and Psychiatry Indicators

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