Critical Intelligence Unit

Evidence brief

Purchasing for value

18 June 2024

Evidence check question

What purchasing or payment models for medical inpatient services have been used to increase value, improve efficiency or reduce length of stay?

Summary

- In Australia, activity-based funding based on the diagnostic related groups (DRGs) classification system is the dominant purchasing model for hospital-admitted patient services. This model has advantages of being transparent, increasing activity levels and reducing the length of stay compared to fee-for-service models. It also has disadvantages, including insufficient cost control, lack of consideration for value and care integration, the likelihood of unnecessary patient admissions, higher readmission rates or upcoding treatment decisions for larger payments.[1, 2]

- Given the disadvantages and side effects of DRG-based payment models, many high-income Organisation for Economic Co-operation and Development (OECD) countries are reducing the overall share of inpatient payments based on DRGs and moving towards integrating value-based payment models. Two broad types of value-based payment models are:

  - **Blended payment** combining two or more payment methods with a pay-for-performance mechanism for quality and value.

  - **Bundled payment** such as payments based on episode-based care (i.e., both acute and post-acute) for multiple providers as a bundle.[3]

- One key strategy pursued by healthcare systems to improve value is to reduce the excessive length of stay and unwarranted variation while maintaining safety and quality. Measures implemented by multiple countries include:

  - Benchmarking average length of stay and setting targets

  - Best practice tariffs

  - Extending the treatment episode to post-acute care

  - Streamlining care pathways and optimising alternative care settings such as day care or outpatient care by implementing appropriate payment mechanisms (i.e., uniform tariffs or bundled payments)

  - Withholding payments for inpatient stays resulting from hospital-acquired infections or readmissions resulting from inappropriate care or splitting care for multiple admissions.

  - Evidence-based clinical guidelines, pathways and indications for health interventions or hospital admissions.[1, 4-7]

- Targets and initiatives focused on surgical stays are described elsewhere.[8]

- Among medical hospitalisations, there is good evidence to support setting targets for a reduction in length of stay for respiratory conditions, cardiology and cellulitis.[9-12] There is limited information on renal conditions and childbirth.

- For example, the Getting It Right the First Time (GIRFT) initiative in England sets out standards and targets for the average length of stay for many medical specialty conditions including respiratory and cardiology.[13, 14] Ireland sets out national targets for metrics such as zero length of stay and average length of stay in the National Acute Medicine Program.[15]

- Once targets for appropriate length of stays are set out, there are a range of interventions and techniques, such as criteria-led discharge, clinical pathways, interdisciplinary care, medication management, and alternate models of care including virtual care, to help health districts and hospitals achieve these targets.

Models and reform of purchasing in health services

Value-based purchasing and payment models and trends

- A January 2024 OECD report on the fiscal sustainability of health systems has projected that health expenditure in OECD countries will continue to grow and the pressure on health spending and resources constraints will continue to intensify without a major policy shift in financing and budgeting. Four broad policy options have been considered across the OECD countries, including increasing overall government spending, increasing budget allocation to health, reassessing boundaries between public and private spending and finding efficiency gains. Seeking efficiency gains and increasing the value for money of health services was considered the most promising approach in promoting sustainability.[16]

- Value-based payment models are a key driver of health system transformation and can contribute to reducing low-value services, increasing efficiency, improving quality of care and promoting better care coordination. The various mechanisms through which value-based payment models enhance care provision and value include:

    - Shifting financial accountability and some of the financial risk to providers, incentivising the most cost-effective care

    - Bundling care provision across multiple providers and promoting care coordination and cooperation

    - Linking quality components and performance to payment based on pre-defined benchmarks.[17]

- A 2021 World Health Organization policy brief recommends the following two payment options as part of strategic purchasing to ensure value-based health services:

    - Blended payment methods (combining two or more payment methods such as salaries, fee-for-service and capitation) with a pay-for-performance mechanism

    - Bundled payment methods whereby "several components of health care for a specific intervention are put together and paid for together, based on the expected costs of patient cases, episodes or care over a specified time period."[3]

- For bundled payment models, a 2022 OECD report suggests that they are best suited for well-defined care pathways for specific conditions and are not one-size-fits-all solutions.[18]

- A 2024 review of inpatient sector payment reforms in 10 high-income countries found that many high-income countries are moving away or descaling from DRGs-based payment models and moving towards a funding system that emphasises value rather than volume. Reform trends include:

  - Searching for new combinations of payment systems and reducing the share of payments based on DRGs

  - Choosing different payment programs for specific hospital types, i.e., rural hospitals

  - Bridging providers via episode-based payments

  - Shifting care to less costly settings

    - Some countries extended DRG payment systems to daycases, and they pay one price for a set of services, regardless of the setting in which these are delivered

    - France introduced "uniform price" and expanded the list of conditions that fall under this payment model. It also introduced a rule where providers who provide lower than the national average percentage of ambulatory services for select conditions need approval from an insurer before admitting patients.[1]

Pay-for-performance payment models

- Pay-for-performance refers to a payment mechanism in which healthcare providers receive conditional funding based on specific predetermined criteria or targets. The pay-for-performance programs usually target either the individual providers, teams, units or hospitals, and a selected aspect of care delivery for a specific condition or multiple aspects or dimensions using an aggregated approach.[19] Pay for performance schemes are usually not a stand-alone payment model in themselves but rather a quality-promoting add-on element to other payment systems.[17]

- Four types of pay-for-performance strategies include:
  - Payment withheld
  - Reward or bonus
  - Penalty
  - A combination of the above.[19]

- Approaches to assessing pay-for-performance include:
  - Absolute performance based on a predetermined threshold which can be either simple or stepped (increased at regular intervals); reward if exceed and penalty if fell below
  - Relative performance
    - The "tournament" or "top-/worst-performer award" performance compared to peers and ranked; top performers rewarded, and bottom performers penalised
    - "improvement award" current performance compared to own past performance; rewarded if improved
    - "Attainment" or "achievement" award performance improvement compared to that of peers; rewarded if attained.[19]

- A review of 34 pay-for-performance programs in the inpatient sector in 14 OECD countries summarises the design elements of financial incentives in pay-for-performance programs.[19]

- Pay-for-performance schemes that reward lower mortality, readmission rates, length of stay and/or waiting times without risk adjustment for patient characteristics, risk inadvertently introducing patient selection bias or patient composition effect.[20-22]

Activity-based funding and diagnostic related groups (DRGs)

- In Australia, at both the federal and state or territory level, the funding allocation and purchasing models for health services are mainly driven by activity-based funding. That is funding based on the number and types of services that are provided to patients at a pre-determined price.[23] The other funding allocation models include block funding, public health funding, grants, and discrete funding programs or initiatives.[23-25]

- The Australian Refined Diagnosis Related Groups is a classification system for the activities for acute admitted patients based on diagnosis, services and interventions.[26]

- Advantages of DRG payment systems include:

  - Increased transparency

  - Increased activity

  - Reduction in length of stay compared to fee-for-service payment systems.[1]

- Downsides to DRG payment systems can include:

  - Insufficient cost control

  - Creation of supply-induced demand

  - Lack of integration of services

  - Lack of consideration for quality of care

  - Hospitals incentivised to modify medical treatment decisions

  - Wasteful spending due to upcoding.[1]

- Examples of strategies and policy measures to counterbalance the unintended consequences of DRG-based payments include:

  - Optimising care settings such as best practice tariffs for appropriate settings

  - Optimising hospital care pathways

  - Integrating care using measures such as streamlined care pathways, best practice tariffs or bundled payment for both the inpatient and post-discharge care

  - Setting thresholds for inpatient stays and payment withholding or reduction for inappropriate readmissions

  - Risk and payment adjustments depending on patient selection

  - Reducing waiting lists by measures such as waiting time targets or performance reporting

  - Reducing tarriffs for splitting care into multiple admissions within a short period of time

  - Monitoring activities, trends and payment measures for admitting patients for unnecessary services.[27]

- Three main types of initiatives for quality adjustment of DRG-based hospital payments include:

  - Introducing best practice tariffs

- Extending the treatment episode to post-acute care
- Excluding hospital-acquired conditions and readmissions from payment.[27]

Reducing hospital length of stay

- One key strategy pursued by healthcare systems to improve value in hospital services and improve quality and safety is to reduce excessive length of stay and unwarranted variation.

- A 2011 report from the National Health Performance Authority on the length of stay in public hospitals for surgical and medical admissions found that there was considerable variation in the length of time similar patients spent in hospital, even among hospitals of similar size and rurality. For medical conditions, it included cellulitis, chronic obstructive pulmonary disease (COPD, Figure 2), heart failure, kidney and urinary tract infections and childbirth. As an example, for COPD with or without complications, average length of stay across major and large hospitals differed by a factor of 2.[28]

- Similarly, a 2016 audit of length of stay in a Victorian hospitals report found a 29% variation in length of stay between the 21 Victorian hospitals after adjusting for patient characteristics (DRG, age, complexity, discharge destination, arrival mode and arrival source, based on relative stay index).[29]

- Both reports recommended that hospitals improve efficiency to deliver anticipated outcomes at an acceptable level and to set up indicators or benchmarks to help assess performance.

- More recently in 2023, the Australian Institute of Health and Welfare published a report on admitted patient activities in Australia in 2021-2022 and the preceding 10 years. From 2011-2012 to 2021-2022, the average length of stay for all conditions decreased from 3.0 days to 2.7 days. However, significant variation remains (Table 1 shows NSW data).

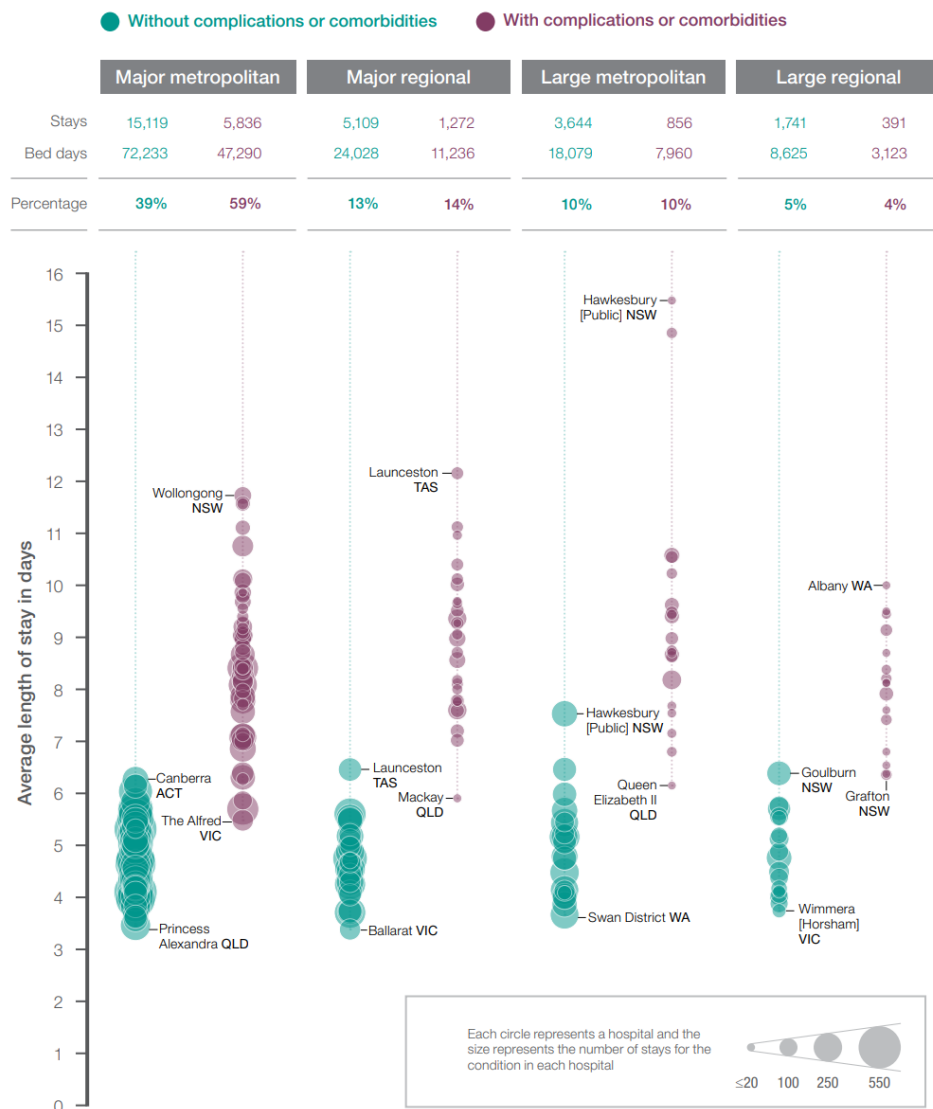- For broader comparisons, OECD country average length of stay by diagnostic categories can be found here.

Figure 2. Average length of stay for COPD in major and large public hospitals, 2011-12. (Source: National Health Performance Authority).

The average length of stay in NSW major, large and medium hospitals for select conditions based on AIHW data

Table 1. Peer group average length of stay in NSW hospitals in 2021-2022 ([data source](#)).

Category	Major hospitals						Large hospitals						Medium hospitals					
	AUS average	NSW average	Low	hosp_low	high	hosp_high	AUS average	NSW average	Low	hosp_low	high	hosp_high	AUS average	NSW average	Low	hosp_low	high	hosp_high
Caesarean delivery	2.7	2.6	2.1	Nepean	3.4	RPA	2.5	2.7	2.3	Blacktown/Manning	3.1	Coff harbour	2.6	2.7	2.2	Maitland	3.3	SERH
Cellulitis	2.7	2.7	2.3	RNS	4.1	Liverpool	2.7	2.6	1.8	Calvary	4.7	Campbelltown	2.7	2.7	2.3	Mount Druitt	4.0	Goulburn
Chronic obstructive pulmonary disease (with complications)	5.9	7.5	6.8	Liverpool	9.3	RPA	5.7	6.6	5.4	Albury	8.7	Bankstown	6.1*	6.8	6.5	Shellharbour	7.9	Maitland
Chronic obstructive pulmonary disease (without complications)	3.0	3.6	3.2	Liverpool	4.3	RPA	3.1	3.4	2.8	Calvary	4.6	Northern Beaches	3.3	3.7	3.3	Canterbury/SERH	4.7	Grafton
Heart failure (with complications)	9.0	9.8	8.1	St George	12.6	RPA	8.5	9.3	7.0	Coffs Harbour	11.0	Blacktown	8.6	9.9	9.2	Hawkesbury	12.7	Fairfield
Heart failure (without complications)	4.1	4.2	3.8	JH	5.2	RPA	4.1	4.1	3.6	Shoalhaven	5.0	Tamworth	4.3	4.7	4.0	Ryde/SERH	5.6	Belmont
Kidney and urinary tract infection (with complications)	5.5	6.4	5.1	RNS	7.9	St Vincent	5.2	5.8	4.1	Calvary	7.7	Wyong	5.4	6.4	6.1	Maitland	8.4	Fairfield
Kidney and urinary tract infection (without complications)	2.3	2.2	2.2	PoW/RNS	3.0	St Vincent	2.3	2.2	2.0	Albury/NB/Shoalhaven	3.5	Manning	2.4	2.9	1.9	Mount Druitt	4.5	Goulburn
Vaginal delivery	2.2	2.3	2.0	Nepean	2.7	RNS/RPA	2.2	2.2	2.0	Blacktown/Campbelltown/Gosford	2.7	Tweed/Bankstown	2.2	2.2	1.8	Canterbury	3.0	SERH
*only four medium hospital in NSW																		

References

1. Milstein R, Schreyögg J. The end of an era? Activity-based funding based on diagnosis-related groups: A review of payment reforms in the inpatient sector in 10 high-income countries. Health Policy. 2024/03/01/ 2024;141:104990. DOI: https://doi.org/10.1016/j.healthpol.2023.104990

2. Meng Z, Hui W, Cai Y, et al. The effects of DRGs-based payment compared with cost-based payment on inpatient healthcare utilization: A systematic review and meta-analysis. Health Policy. 2020/04/01/ 2020;124(4):359-67. DOI: https://doi.org/10.1016/j.healthpol.2020.01.007

3. Organization WH. From value for money to value-based health services: a twenty-first century shift: WHO policy brief. 2021.

4. Voorde CVd, Gerkens S, Heede KVd, et al. A comparative analysis of hospital care payments in five countries. Belgium: The Belgian Health Care Knowledge Centre (KCE); 2013 [Available from: https://kce.fgov.be/sites/default/files/2021-11/KCE_207Cs_Hospital_financing_synthesis2.pdf

5. Betz V, Boeger D, Buentzel J, et al. Effect of the German tonsillitis guideline on indication for tonsil surgery in patients with recurrent acute tonsillitis: a population-based study. Sci Rep. Oct 17 2023;13(1):17612. DOI: 10.1038/s41598-023-44661-y

6. K T, BF L, NK M, et al. Interventions To Decrease Hospital Length of Stay. Rockville, MD: Agency for Healthcare Research and Quality (AHRQ); 2021 [cited 27 May 2024]. Available from: https://effectivehealthcare.ahrq.gov/products/hospital-length-of-stay/report

7. Charvat C, Jain S, Orenstein EW, et al. Quality Initiative to Reduce High-Flow Nasal Cannula Duration and Length of Stay in Bronchiolitis. Hospital Pediatrics. 2021;11(4):309-18. DOI: 10.1542/hpeds.2020-005306

8. Critical Intelligence Unit (CIU). Approaches to reduce surgical waiting time and waitlist. Sydney: Agency for Clinical Innovation (ACI); 2023 [cited 25 Jan 2024]. Available from: https://aci.health.nsw.gov.au/statewide-programs/critical-intelligence-unit/surgery-waitlist

9. Tipton K, Leas BF, Mull NK, et al. Interventions to Decrease Hospital Length of Stay. 2021.

10. Westbroek LF, Klijnsma M, Salomé P, et al. Reducing the Number of Hospitalization Days for COPD: Setting up a Transmural-Care Pathway. Int J Chron Obstruct Pulmon Dis. 2020;15:2367-77. DOI: 10.2147/copd.S242914

11. Ong BS, Ngian VJJ, Yeong C, et al. Out of hospital and in hospital management of cellulitis requiring intravenous therapy. International journal of general medicine. 2019:447-53.

12. O'Connell J, O'Farrell R, de Barra E. A feasibility assessment of an ambulatory care pathway for cellulitis at a tertiary referral centre in the Republic of Ireland. Clinical Infection in Practice. 2020/10/01/ 2020;7-8:100035. DOI: https://doi.org/10.1016/j.clinpr.2020.100035

13. Getting It Right First Time (GIRFT). Respiratory medicine: GIRFT programme national specialty report. London, UK: GIRFT; 2021 [cited 27 May 2024]. Available from: https://gettingitrightfirsttime.co.uk/wp-content/uploads/2021/11/Respiratory-Medicine-Oct21L.pdf

14. Getting It Right First Time (GIRFT). Cardiology: GIRFT Programme National Specialty Report London, UK: GIRFT; 2021 [cited 27 May 2024]. Available from: https://www.gettingitrightfirsttime.co.uk/wp-content/uploads/2021/09/Cardiology-Jul21k-NEW.pdf

15. Health Services Executive (HSE). National Acute Medicine Programme. Dublin, Ireland: HSE; [cited 27 May 2024]. Available from: https://www.hse.ie/eng/services/publications/clinical-strategy-and-programmes/acute-medicine-programme-brochure.pdf

16. Organisation for Economic Co-operation and Development (OECD). Fiscal Sustainability of Health Systems: How to Finance More Resilient Health Systems When Money Is Tight? Paris, France: OECD; 2024 [cited 27 May 2024]. Available from: https://www.oecd-ilibrary.org/social-issues-migration-health/fiscal-sustainability-of-health-systems_880f3195-en

17. Lindner L, Lorenzoni L. Innovative providers' payment models for promoting value-based health systems: Start small, prove value, and scale up. 2023.

18. Organisation for Economic Co-operation and Development (OECD). Value-based providers' payment models: understanding where and under which conditions they work. Geneva: OECD; 2022 [cited 13 Nov 2023]. Available from: https://www.oecd.org/health/Value-based-providers-payment-models.pdf

19. Milstein R, Schreyoegg J. Pay for performance in the inpatient sector: A review of 34 P4P programs in 14 OECD countries. Health Policy. Oct 2016;120(10):1125-40. DOI: 10.1016/j.healthpol.2016.08.009

20. Lisi D, Siciliani L, Straume OR. Hospital competition under pay-for-performance: Quality, mortality, and readmissions. Journal of Economics & Management Strategy. 2020/04/01 2020;29(2):289-314. DOI: https://doi.org/10.1111/jems.12345

21. Besley TJ, Bevan G, Burchardi K. Naming & Shaming: The impacts of different regimes on hospital waiting times in England and Wales. 2009.

22. Cooper Z, Gibbons S, Skellern M. Does competition from private surgical centres improve public hospitals' performance? Evidence from the English National Health Service. Journal of Public Economics. 2018/10/01/ 2018;166:63-80. DOI: https://doi.org/10.1016/j.jpubeco.2018.08.002

23. National Health Funding Body (NHFB). National Health Funding Pool Annual Report 2021-22. Canberra: NHFB; 2022 [cited 28 Sep 2023]. Available from: https://www.publichospitalfunding.gov.au/publications/national-health-funding-pool-annual-report-2021-22

24. Queensland Health. Hospital and Health Services Funding and Purchasing Guidelines. Brisbane: Queensland Health; 2022 [cited 28 Sep 2023]. Available from: https://www.publications.qld.gov.au/ckan-publications-attachments-prod/resources/70f28ce0-afaa-43ee-94e5-da21d5b73e08/hhs-funding-and-purchasing-guidelines-2022-23.pdf?ETag=05f3439808a3e25974ac6baa30bb41e9

25. SA Health. 2022-23 Funding allocation methodology for South Australian Public Hospitals Adelaide 2022 [cited 28 Sep 2023]. Available from: https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.sahealth.sa.gov.au%2Fwps%2Fwcm%2Fconnect%2F586d5c4b-accb-4f0a-8d73-99cbbdc94f1f%2FCombined%2BMethodology%2B2022%2B2022.10.17.docx%3FMOD%3DAJPERES%26amp%3BCACHEID%3DROOTWORKSPACE-586d5c4b-accb-4f0a-8d73-99cbbdc94f1f-orZbjMe&wdOrigin=BROWSELINK

26. Independant Health and Aged Care Pricing Authority (IHACPA). AR-DRGs. Canberra: IHACPA; 2023 [cited 27 May 2024]. Available from: https://www.ihacpa.gov.au/

27. Van de Voorde C, Gerkens S, Van den Heede K, et al. A comparative analysis of hospital care payments in five countries. Health Services Research (HSR), KCE Report.2013 [cited 27 May 2024]. Available from: https://kce.fgov.be/sites/default/files/2021-11/KCE_207Cs_Hospital_financing_synthesis2.pdf

28. National Health Performance Authority (NHPA). Hospital Performance: Length of stay in public hospitals in 2011–12. Sydney: NHPA 2013 [cited 27 May 2024]. Available from: https://www.aihw.gov.au/getmedia/c0d5314d-80c5-428a-8ea9-b3a94e17e9fb/hpf_57_2011_12_report.pdf?v=20230605174042&inline=true

29. Victorian Auditor-General's Office (VAGO). Hospital Performance: Length of Stay. Melbourne, Australia: VAGO; 2016 [cited 27 May 2024]. Available from: https://www.audit.vic.gov.au/report/hospital-performance-length-stay?section=