Public Pathology
AUSTRALIA

# Public Pathology – Value and Opportunities

Putting patients first


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# Executive Summary

People live longer and better through access to appropriate pathology testing to prevent, diagnose, treat and monitor disease. Pathology can reduce higher downstream costs associated with delayed diagnoses and treatment including preventable hospital admissions. A strong, sustainable government owned and operated public pathology sector is required to ensure equity of access to the full range of pathology tests for all patients. This paper outlines the role and the value of the public pathology sector. It addresses the challenges and opportunities of delivering a people-centred service which delivers the right test at the right time now and in the future.

Public pathology services are government owned and operated pathology services. They provide over $2 billion worth of tests every year to ensure all patients can access the tests they need regardless of their income and location. There are more than 170 public pathology laboratories in Australia. Many operate 24/7 in major teaching hospitals while half of these laboratories are located in regional and rural areas. Integration of laboratories within hospitals enable results to be turned around quickly, and doctors interact with each other and patients to improve health outcomes. Public pathology provides expertise in diagnosing patients with the most complex, life threatening and rare conditions. Public pathology has an essential, primary role in public health outbreaks as demonstrated by its responsiveness to the COVID-19 pandemic.

Public pathology is important in ensuring continuity of care from inpatient hospital episodes to community treatment. In the Medicare funded community market, public pathology improves access and choice by virtue of *physical location* or the geographical spread of collection centres and laboratories, wide *range of tests* provided and *affordability* of the fee for pathology services. This is impeded by public pathology providers receiving lower fees under the Medicare Benefits Schedule (MBS) compared to other pathology providers.

Pathology needs are increasing and becoming more complex as a result of the growing and ageing population and rapid technological development. Public pathology has been at the forefront by teaching, training and conducting leading edge research into new and existing diseases, tests and treatments. Public pathology providers are also stewards of appropriate testing as they actively work with requesting clinicians around ordering protocols.

There are challenges and opportunities in meeting current and future pathology needs. These include ensuring the quality of pathology services across all areas, keeping pace with technology to deliver flexible service solutions particularly in rural and remote areas, overcoming competitive barriers, ensuring the appropriate use of pathology, and making the MBS fit for purpose.

To improve equity of access to pathology services, there needs to be better utilisation of capacity within the public pathology sector to provide MBS services by increasing MBS fees. There also needs to be adoption of innovative diagnostic solutions such as pathology provider governed point of care tests, digital pathology and greater automation. A new appropriately funded MBS item for rural and regional testing would ensure that patients can access services when and where they need them.

The MBS should disincentivise over ordering whilst encouraging appropriate pathology ordering. This could be achieved by implementing the MBS Review recommendations in a carefully managed way, ensuring rebates cover the true cost of pathology episodes, incentivising adoption of appropriate ordering practices, amending referred test rules and increasing the standardisation of test names and intervals. There also needs to be a framework for ongoing issues resolution between Government and the pathology sector.

The pathology services of the future will have greater consumer involvement and see faster adoption of new technology to improve patient outcomes. Locally based pathology testing with accurate, fast and direct delivery of results and local clinical liaison and advice should be the norm. A move to people-centred care will bring solutions closer to home, higher use of pathology for prevention and foster greater collaboration. The use of digital tools will assist both clinicians and patients.

Pathology funding and policy will need to adapt to ensure that patients receive the best possible outcomes. New clinically appropriate genomic tests and molecular technologies must be adequately funded and listed on the MBS is a timely manner. Building digital and computational technologies into pathology should be supported to leverage extensive pathology datasets for planning, policy and research to improve patient outcomes and experience.

The public pathology sector is well placed to move to people-centred service that is fit for the future. This would be facilitated by better utilisation of the capacity and capability of the public pathology sector particularly in rural and regional areas, combined with changes to MBS items and fees and an investment in enabling technologies. There can be greater system-wide benefits gained by viewing pathology as a key partner, rather than just as a cost.

# Introduction

People live longer and better through access to appropriate pathology testing to prevent, diagnose, treat and monitor disease. A strong, sustainable government owned and operated (public) pathology sector is required to ensure access to services by virtue of location of collection centres and laboratories, the wide range of tests provided and their affordability.

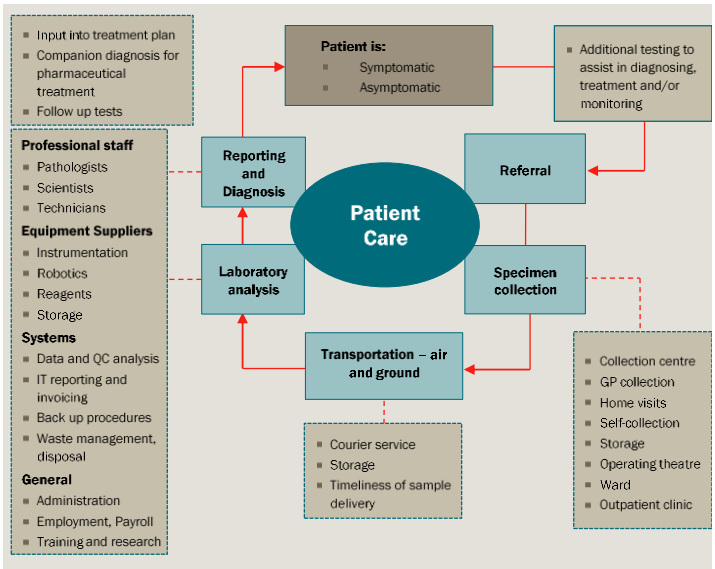
This paper outlines the role of pathology and the value of the public pathology sector. It addresses the challenges and opportunities of delivering a people-centred service which delivers the right test at the right time now and in the future.

# The role of pathology in healthcare

Pathology is a medical service that provides diagnostic and consultative services to medical specialists and general practitioners and their patients in hospitals and in the community. It involves the scientific analysis of specimens of blood, fluids, tissue and other samples; interpretation and reporting of clinically meaningful results; and provision of expert medical opinion through consultation.

Generally, a pathology test is initiated by a request from a patient's doctor which is a referral for a specialist opinion. A sample is taken from the patient and sent to a laboratory where trained staff process, analyse, interpret and report the results of the test. The report is provided to the requesting doctor to help decisions about the patient's diagnosis, treatment and/or management.

*Image 1: The Request – Test – Report Cycle*[1]




[1] The Centre for International Economics, *The Economic Value of Pathology: Achieving Better Health and a Better Use of Health Resources*, 2018, p9.

Pathology is a clinical knowledge service that is fundamental to modern medical practice and health care. Pathology services lie at the heart of health care services. Pathology is used in the diagnosis, treatment and management of an increasing range of clinical conditions. Pathology is used to:

- predict susceptibility to disease;
- prevent disease by identifying risk factors in patients that can be modified;
- diagnose many diseases. Over 70 per cent of all health care decisions affecting diagnosis or treatment involve a pathology investigation. All cancer diagnoses involve pathology;
- show the presence or absence of infection;
- monitor disease, identifying whether treatments work or should be adjusted or avoided; and
- personalise treatment to get the best results.[2]

Pathology underpins the quality and cost effectiveness of health care. Pathology services avoid higher downstream costs associated with delayed diagnoses and treatment. For example, testing for diabetes and monitoring diabetes markers by pathology tests assists in preventing or reducing complications from diabetes including potentially preventable hospitalisations. A 1 percent reduction in patient levels of glycated haemoglobin (HbA1c) has been shown to reduce the cumulative incidence over 5 years of:

- end stage kidney disease by 40 per cent
- amputation by 21 per cent
- advanced eye disease (proliferative retinopathy) by 43 per cent, and
- myocardial infarction by 16 per cent.[3]

Healthcare services are provided by the government (public) sector and the private sector. In Organisation for Economic Cooperation and Development (OECD) countries, a higher proportion of expenditure in the public healthcare sector compared to the private sector is associated with lower overall expenditure in healthcare.[4]

Greater utilisation of public healthcare providers, such as public pathology providers, can reduce overall healthcare spend. This is the case for the UK and Scandinavian countries which have a lower healthcare expenditure and a broader use of public pathology in the hospital and community market. For example, in Denmark, Esbjerg public hospital provides pathology services to the hospital and general practitioners within 50 - 100 kilometres around the public hospital.

[2] Ibid, p1.
[3] Ibid, p25.
[4] New England Journal of Medicine, https://www.nejm.org/doi/full/10.1056/NEJMp1413937 accessed 11 Sept 2019.

*Image 2 – Public health expenditure compared to per capita total healthcare spend*[5]


## Public pathology sector

The public pathology sector consists of government owned and operated pathology services.

Public pathology services have an extensive network of laboratories and technologies to provide access to the tests and analysis patients need regardless of their income and location. Over $2 billion pathology tests are undertaken in the public pathology sector every year.[6] Public pathology provides 24/7 services in teaching hospitals and major centres as well as services in regional and remote settings. They are the sole provider of tests in some geographical areas.[7] Public pathology provides service certainty to ensure all Australians can get the pathology test they need when they need it. Public pathology is the backbone of healthcare. It operates for all of the people, for all of the day and for all of the night.

[5] Ibid.
[6] Based on activity costed at private pathology MBS item rates and non-MBS item rates: Public Pathology Australia, *Member Survey*, 2019.
[7] Paxton Partners, *MBS Use by Public Hospitals*, June 2011, Canberra.

Public pathology is the foundation of pathology in Australia. Pathology services were first formed in Australia's public hospitals, and public pathology services in each State and Territory have supported hospitals and wider clinical practice for over 100 years. Traditionally, public pathology services have been developed locally in association with clinicians at health facilities to support clinical service delivery in those locations. This subsequently expanded to non-acute, ambulatory care, community health and external customers such as general practitioners and community-based specialists.

The way public pathology services are organised and delivered varies across jurisdictions. In recent years, there has been some consolidation of services into single State-wide services (Queensland, Western Australia, South Australia, the Australian Capital Territory, Northern Territory and New South Wales), while others are organised regionally around state government hospital networks (Tasmania and Victoria). Public pathology services have significant reach. For example, NSW Health Pathology is the third largest pathology provider in Australia, with more than 4000 staff delivering more than 61 million tests from 60 laboratories to patients across NSW.[8] Public pathology provides timely testing for all patients across a broad network of collection centres and laboratories across Australia.

*Image 3 – Major diagnostic public pathology providers in Australia*


[8] https://www.pathology.health.nsw.gov.au/about-us

Public pathology providers strive to deliver equal access to the full range of pathology services irrespective of age, culture, background or location of patients. They are committed to patient safety, quality assured services and improving health outcomes for all patients.

Public pathology is a frontline clinical service. Public pathology providers contribute significant expertise in diagnosing patients with the most complex and life–threatening conditions, such as those encountered in Emergency Departments, Intensive Care and Oncology Units. Public pathologists provide direct care to patients on wards or in outpatient clinics.

Public pathologists and scientists also have wider clinical governance, health policy and management responsibilities in the health system. Timely, accurate diagnosis leads to better and faster clinical decisions. Public pathology focusses on rational, evidenced based testing. This drives efficiencies and provides value for money. Public pathology operates for the benefit of the health system and its patients. Public pathology provides a source of independent advice to government. Public pathology makes decisions for patients, not decisions for profit.

***Public Pathology Snapshot***

- Over $2 billion of tests from more than 32 million requests per annum.
- Over 170 laboratories including 90 laboratories in rural and regional areas.
- Over 10,000 staff including 60 per cent of all Australian pathologists.[9]

## Hospital services

Public pathology laboratories located within hospitals are funded through State and Territory Governments. Public pathology providers also receive funds through the Commonwealth Medicare Benefits Schedule (MBS), health funds and other sources. The revenue split is highly variable among public pathology providers.[10] Fifty percent of public pathology providers also utilise the MBS as a charging model for the provision of non-Medicare services to Local Health Networks/State Government.[11]

Pathology services that are integrated with public hospitals improve patients experience of the health system and generate downstream savings by improving patient flow from the community to hospital, outpatients, and back to the community. When laboratories are located in hospitals, results can be turned around quickly, and doctors interact with each other and patients to improve health outcomes. Public pathology is part of the patient's healthcare journey.

Public pathology provides health practitioners with timely access to government's own comprehensive, integrated pathology service. Public pathology providers assist clinicians in selecting, interpreting and responding to the most appropriate pathology tests to treat and manage disease. Onsite pathologists routinely attend multidisciplinary meetings, ward rounds

[9] The Royal College of Pathologists of Australia 'Pathology workforce, short version August 2013' 2013: https://www.rcpa.edu.au/getattachment/3fabbf0e-094b-425b-a078-3d23ca895e58/Pathology-Workforce-Short-Version.aspx
[10] MBS revenue equates to 12% - 59% of expenditure budget of public providers: Public Pathology Australia Member Survey, 2014.
[11] Public Pathology Australia Member Survey, 2019.

and intensive care unit rounds for adult and paediatric patients, where they discuss results, diagnosis, prognosis, and treatment options in a team to ensure the best outcomes for patients. Public pathology lies at the heart of health care and clinical pathways. Public pathology enables evidenced based clinical care.

Public pathology does the right test at the right time. Timely results are critical to ensuring patients receive optimal care in the health system. Test results are needed to determine diagnoses or the next step in treatment or management of a patient's care. To provide optimal patient outcomes, improve patient flow and reduce downstream costs, it is important that pathology providers turn around pathology results in a timely manner.

An example of the impact of timely pathology results on patient flow is troponin testing in hospital Emergency Departments to distinguish between patients with benign chest pain and those experiencing acute coronary syndrome (myocardial infarction and unstable angina pectoris). Pathology directly manages reductions in costs of $188.8 million a year for patients who need not stay within Emergency or be admitted to hospital due to benign chest pain.[12]

For patients to have a seamless journey through the health care system, it is beneficial for clinicians to work together and for pathology tests to be consistently reported into a single laboratory information system and electronic medical record. This enables better access to results and monitoring of patient outcomes and reduces unnecessary duplicate testing. Public pathology providers also upload pathology reports to the My Health Record. This helps patients keep track of their tests and enables other practitioners to search for results. Public pathology providers led the upload of pathology reports to the My Health Record, with most providers now uploading reports to the My Health Record.

Public pathology is important in ensuring continuity of care from inpatient episodes to community treatment. Reports from different pathology providers have different reference ranges, making it difficult to track patient progress by comparing tests results from different pathology providers. Having pathology tests by a single provider enables consistent reporting and monitoring of patients as they pass through the continuum of care from an inpatient stay through to stabilisation and ongoing management in the community.

**Community services**

Pathology services provided in the community are a core part of the primary health care system, and these are predominantly funded through the Federal Government by Medicare.

- One in every two General Practitioner (GP) visits involve a pathology referral;
- One in every three problems presented to a GP involve a pathology referral, most commonly for the management of diabetes, general health checks, hypertension, and lethargy; and
- Sixty per cent of GP referrals for pathology relate to preventative health and chronic illness, which are essential to population health.[13]

[12] The Centre for International Economics, Op Cit, p28.
[13] The University of Sydney *A decade of General Practice Activity 2006-07 to 2015-16,* General Practice Series number 41, 2016, p116.

Public pathology plays an important role in the Medicare funded community pathology market by ensuring equitable access, providing greater patient choice and competitive pressure to ensure the Federal Government receives value for its investment in the pathology sector.

Nationally, public pathology providers occupy around 12 per cent of the MBS pathology market and individually in some jurisdictions, this figure is 35 per cent.[14] There are over 6000 Approved Collection Centres in Australia and several hundred of these are operated by the public sector. Just over half of the public pathology Approved Collection Centres are located in rural and regional Australia[15] Public pathology providers in WA, SA and NSW have a relatively large network of collection centres to service the needs of their respective populations.

Public pathology improves access and choice by virtue of *physical location* or the geographical spread of collection centres and laboratories, wide *range of tests* provided and *affordability* of the fee for pathology services.

For example, SA Pathology has more patient specimen collection centres located in regional areas compared to other pathology providers in the state.[16] To deliver tests in a timely manner, 85 per cent of pathology requests are tested in a local laboratory by SA Pathology. This is unlike the common practice of private pathology providers who refer tests to centralised laboratories which may be located a considerable distance from patients, delaying access to timely pathology reports.

Public pathology providers perform a comprehensive range of tests with timely turn around times across Australia. Public pathology has a wide-ranging test catalogue or menu.[17] The costs of local service provision need to be considered beyond pathology costs alone. It can be less expensive overall to provide pathology onsite and save in patient or specimen transportation costs. Local service provision is less disruptive to patients and enables greater opportunities for family support to aid in recovery.

Although pathology has one of the highest levels of bulk billing compared to other medical services,[18] it is estimated that around 3 per cent of patients delay or avoid having a pathology test because of cost.[19] In the absence of this competitive pressure in a highly consolidated pathology marketplace, the introduction of co-payments for pathology would pose a significant barrier to accessing pathology services for patients in low or moderate income households.[20]

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[14] Department of Health *Annual Medicare Statistics – Financial year 2017-18,* Medical Statistics Workbook, Worksheet 1.10, Broad Type of Service: Pathology Tests 2018: *http://www.health.gov.au/internet/main/publishing.nsf/Content/Annual-Medicare-Statistics*

[15] Australian Government https://www2.medicareaustralia.gov.au/pext/pdsPortal/pub/approvedCollectionCentreSearch.faces

[16] Ibid.

[17] As evidenced from accreditation scope of practice as opposed to MBS claiming patterns.

[18] At 88.5% - The Centre for International Economics Op Cit, p5.

[19] Department of Health and Ageing, *Review of Funding Arrangements for Pathology Services: Final Discussion Paper*, March 2011.

[20] http://medicarestatistics.humanservices.gov.au/statistics/do.jsp?_PROGRAM=%2Fstatistics%2Fmbs_group_standard_report&DRILL=on&GROUP=6&VAR=benefit&STAT=count&RPT_FMT=by+state&PTYPE=finyear&START_DT=201707&END_DT=201806, with Australian Bureau of Statistics Patient experiences in Australia: Summary of Findings 2017/18.

Where public pathology providers are present in the community pathology market, improved access and higher bulk billing rates result.[21] This is supported by a review of private pathology billing policies which shows that where public pathology has a strong presence in the community, the 'gap fee' or out-of-pocket cost charged by private pathology is lower.[22] It has been found that public pathology provision in the community serves important public health policy objectives. It improves competition and places downward pressure on out-of-pocket costs for patients. [23]

**Critical and complex care**

Public pathologists are experts in diagnosing patients with the most complex and life-threatening conditions faced by patients in public hospitals – in Emergency Departments, Intensive Care and Oncology Units. They provide specialist expertise in complex care.

Many public sector pathologists are practising clinicians providing direct clinical care to cancer patients, people with haemophilia and other blood disorders, people with immune system problems and infectious diseases, and people with metabolic disease such as diabetes and obesity. Pathologists are commonly involved in multidisciplinary teams of medical specialists where they provide clinical leadership to improve patient outcomes.

The expertise of public pathology leads to more effective, personalised care. For example, Peter Mac has developed a number of plasma ctDNA assays that are able to genomically profile cancer patients to identify "druggable" targets. The clinical utility of this was recently demonstrated in a patient who was diagnosed several years ago with EGFR-mutation positive Non-Small Cell Lung Cancer (NSCLC) on a lung biopsy, who presented for annual review with recent onset of bone pain. Upon diagnostic imaging, the patient did not have a biopsiable lesion. Testing using a ctDNA liquid biopsy allowed for identification of a new EGFR resistance mutation without the need for surgical intervention. This positive result was available within a few days, allowing treatment decisions to be made rapidly, and targeted therapy was commenced with a third-generation tyrosine kinase inhibitor.

Public pathologists and scientists are some of the most prestigious and well-regarded experts in their fields. Public pathology is the home of many of Australia's specialist reference laboratory services which conduct tests that require specialist equipment and expertise. Public pathology develops and are often the sole provider of specialised tests not funded through the MBS.

[21] ACT Treasury, *Competitive Neutrality of Community Pathology Services Summary Paper*, June 2012.
[22] Public Pathology Australia, *Billing Policy Survey*, 2018.
[23] ACT Treasury, Op Cit.

## Public health

Public pathology plays a vital role in responding to public health emergencies at local, state and national levels. They have surge capacity when it is needed most and extensive experience working with other agencies to deliver effective response efforts.

Public pathology laboratories are integral to the diagnosis, outbreak control and prevention of diseases such as influenza, measles, meningococcal disease, salmonella and tuberculosis by working closely with communicable diseases teams and reference laboratories and report tests promptly. They have a principal role in testing in public health emergencies.

In the COVID-19 pandemic, Australian public health laboratories had reliable, accurate discriminating testing available before the first patient presentation. Immediate action to isolate and culture the virus, undertake full whole genome sequencing, capture electron microscopy images, and develop serology and nucleic acid testing by public pathology laboratories enabled patients to be tested immediately and for contact tracing and epidemiology to track the progression of COVID-19 in Australia.

Validation of testing and confirmatory testing of positive cases by public health laboratories has also enabled other laboratories to also test for the virus that causes COVID-19 two months later. The rapid introduction of COVID-19 testing by public pathology laboratories has enabled accessible and timely testing supporting the diagnosis and contact tracing efforts so important in managing the spread of this disease. Public pathology has an essential public health role.

## Regional, rural and remote services

The public sector is committed to ensuring access to health services for all patients, including those in rural and remote areas where it is not profitable to provide pathology services. Public pathology services critically support the needs of small country hospitals and their patients, running on call and 24-hour services in those hospitals. Local laboratories are required for critical care in regional emergency departments, acute wards and maternity units. A bleeding farmer cut by his combine harvester, a grandad having a heart attack, a mother bleeding post-partum in a rural location can't wait for blood transfusion and pathology testing conducted in a metropolitan laboratory.

Public pathology providers generally have a high proportion of laboratories and collection centres outside metropolitan areas, with 90 public pathology laboratories in regional and rural Australia. For example, SA Pathology has twice the number of laboratories in rural and regional areas compared to other pathology providers in South Australia.

Laboratories have high fixed costs. Reviews have found that the minimum number of tests per day for a viable comprehensive laboratory is 5000.[24] As test volumes are low in rural and regional areas, the cost of service provision is significantly higher than in metropolitan areas where there are larger economies of scale. Also, costs increase the further specimens have to

[24] PriceWaterhouseCoopers report *Capital Expenditure in the Pathology Sector* August 2010.

be transported. While onsite services in rural and regional areas are more expensive, they are essential to ensuring patients receive the tests they need in a timely manner.

Public pathology services are commonly viewed as a source of last resort but there is no obligation for these State Government funded services to provide Medicare funded community pathology tests. PathWest operates 75 collection sites across Western Australia. 51 (68%) collection centres are located outside the metropolitan area including 40 in rural and remote areas. These collection centres facilitate the collection of pathology tests for public hospital patients. They also benefit patients needing community pathology tests. Retaining capacity to provide community pathology services through the public sector ensures there is sufficient capacity to meet demand for the full range of pathology tests required for patient care. Public pathology delivers the right services where they are needed.

**Stewardship and clinical governance**

Public pathology services are accountable to patients - the taxpayers and the government. They provide stewardship in relation to appropriate testing and are not incentivised to over-service. An example is the reduction of folate tests requested as folate is not commonly required to be tested due to the fortification of flour in bread. Public providers work with their clients in programs such as Choosing Wisely to investigate ordering data, work out ordering protocols that maximise value to ensure minimal, cost effective, sensible and appropriate testing is done for the benefit of the taxpayer, not for the benefit of the provider.

Public pathology is integrated into the clinical services and governance arrangements that are essential to the safe and effective operation of Australia's acute care hospitals. This includes infection prevention and control within health services such as antimicrobial stewardship programs, blood management and quality and safety committees. It also includes occupational and environmental health.

**Teaching and training**

As part of Australia's teaching hospitals, public pathology providers play an important role in teaching undergraduate medical students and in training current and future cohorts of pathologists and medical scientists. This builds and retains medical and scientific expertise. Public pathology services train those who work in both public and private pathology. The importance of public pathology in teaching is demonstrated in jurisdictions such as South Australia where SA Pathology is the only pathology provider that trains doctors to become pathologists. Public pathology teaches medical and science students through to specialists, within and beyond the laboratory.

## Research and technology

Public pathology providers conduct leading edge research into new and existing diseases, diagnostic tests and treatments. Research interests and responsibilities are pronounced in public pathology. Public pathology provides ethical expertise, data, specimens and results for researching the tests and treatments of tomorrow.

Public pathology providers have close collaborative links to world-leading research institutions and universities, which expedites translation of research into practice enables new models of care which improves patient outcomes. For example, the Centre for Cancer Biology (an alliance between SA Pathology and the University of SA) has received international recognition for their work which has changed the way patients with chronic myeloid leukaemia are managed. Public pathology services are leaders in clinical and treatment innovation.

Public pathology is an enabler for clinical research in acute and chronic care settings. By supporting clinical trial activity, patients may have access to research-funded high cost novel treatments free-of charge, reducing costs to the health-care sector.

## Point of Care Testing

Point of Care Testing (PoCT) is pathology testing performed in close proximity to the patient by a healthcare worker usually outside of a traditional laboratory. Public pathology services operate extensive PoCT networks. For example, NSW Health Pathology has one of the largest PoCT networks in the world. Having tests done at the patient's bedside enables rapid clinical decision and patient treatment. It also broadens access to pathology tests in areas where pathology services have traditionally been limited or non-existent. By providing supervision of PoCT, public pathology ensures that PoCT testing delivers high quality, cost-effective rapid patient results which clinicians can use with confidence for clinical decisions.

## Forensics

Some public pathology providers provide forensic services to assist in solving crime and identification. These services include the provision of post-mortem examinations, chemical criminalistics, forensic DNA processing and forensic toxicology.

## Commercial Services

Some public pathology providers offer independent, cost-effective expertise in commercial testing of foods, beverages, air quality, water, cosmetics and pharmaceuticals.

# Challenges and Opportunities

Pathology needs are increasing and becoming more complex as a result of the growing and ageing population and rapid technological development. Some of the challenges and opportunities in meeting current needs include: ensuring the quality of pathology services across all areas, keeping pace with technology to deliver flexible service solutions particularly in rural and remote areas, overcoming competitive barriers, ensuring the appropriate use of pathology, and making the MBS fit for purpose.

**Quality of pathology**

The quality of pathology in Australia is regarded as high. National Pathology Accreditation Advisory Council (NPAAC) has played a pivotal role in establishing high quality pathology standards. However, there are areas which could be improved to improve the quality of pathology services and its use.

There remains scope to improve quality in pre-analytical and post-analytical standards and processes as errors in these areas can affect the interpretation and delivery of tests even though tests are conducted properly. Pre and post analytical errors commonly relate to specimen security and integrity, managing correct patient identification, the delivery of results and follow up communication with patients and clinicians. Automation via electronic ordering, sample delivery and process management reduce these types of errors. However, its use has been sporadic in the public sector.

Quality issues may also arise where public hospital pathology services are outsourced to the private pathology sector. In some outsourced services in Victoria, onsite services have been withdrawn, equipment not maintained and sentinel events have occurred. There have also been issues in other jurisdictions. In NSW, a patient in the Northern Beaches Public Hospital had an incorrect surgical procedure performed due to errors in the pathology report from the outsourced private provider.[25] There is a need to ensure appropriate management of all clinical incidents for the safety of patients and for system-wide learning.

There is also a need to improve the rate at which requesting clinicians view pathology reports. Widespread adoption of report-read flags and alerts particularly for urgent tests can improve this.

[25] https://www.smh.com.au/national/nsw/wrong-body-part-removed-from-cancer-patient-at-sydney-hospital-20190621-p5204v.html. A parliamentary inquiry was established into the operation and management of Northern Beaches Hospital: https://www.parliament.nsw.gov.au/committees/inquiries/Pages/inquiry-details.aspx?pk=2524

## Technology

There has been an increasing use of technology to improve pathology testing and access to services. There is scope to increase this by broadening the use of Point of Care Testing (PoCT) providing risks are appropriately managed.

PoCT is pathology testing performed near or at the site of the individual by a PoCT operator at the time of the consultation or encounter.[26] PoCT results can be used to make immediate informed decisions about individual care.

PoCT results are rapid and convenient. Faster access to results leads to faster clinical decision making and greater patient satisfaction. PoCT reduces costs involved in patient and specimen transport and improves workflow efficiencies. Beyond utilisation in treatment, medication or safety, PoCT can be used to reduce blood product wastage and increase opportunistic screening.

PoCT results can be used within a pathology laboratory setting, hospital networks, general practice, community health and other settings such as pharmacies, sporting venues and law enforcement. PoCT devices are also used directly by patients outside these settings. PoCT enables more flexible service configuration and can improve access in areas where there is no or low access to pathology services.

Public pathology services have extensive PoCT networks. NSW Health Pathology has the largest, most geographically dispersed managed and accredited network in the world.[27] PoCT is used in hospitals, for example in Emergency Departments and cardiac theatres, and there is scope to increase its utilisation in ambulance services. SA Pathology also manages PoCT devices in general practice. PoCT in the home may play an important role in the future in a digitally connected healthcare environment. A home PoCT testing program for children on oral anticoagulants conducted by the Royal Children's Hospital in Melbourne has demonstrated improvements in quality or life and patient satisfaction.[28]

PoCT is not a replacement of the full suite of laboratory tests. Not all PoCT devices are fit for purpose and not all pathology tests can be performed on PoCT devices. PoCT must be operated within a strict supervisory and quality assurance framework to ensure consistently accurate results are provided. In PoCT, typical errors include device operators failing to follow manufacturer's instructions, not performing quality control or calibration, making errors in patient identification and specimen collection (generally blood specimen haemolysis which can affect results and goes undetected through most PoCT devices).[29] Post-analytical errors in PoCT often revolve around the use of generic reference intervals which may not be appropriate for specific patients. There are also often no alert mechanisms on PoCT devices.

PoCT devices need to interface with health records so that a patient's complete medical history is able to be reviewed by all treating clinicians. They also need to have bidirectional connectivity which allows data for quality systems to be captured such as quality control checks, whilst also

[26] National Pathology Accreditation Advisory Council (NPAAC) Guidelines for Point of Care Testing (First Edition), 2015, p4.
[27] NSW Health Pathology, *Importance of Accreditation of Point of Care Testing*, 2018, p1.
[28] Jones S et. Al Quality of life assessment in children commencing home INR self testing. Throm Res 2013 132(1): 37-43.
[29] Ibid p4.

allowing for software updates, configuration changes, and approved operator information to be sent.

Pathology laboratories are best placed to extend their expertise in quality control and assurance to PoCT within and outside the hospital environment. Public pathology providers educate and train other clinicians in the use of PoCT. Health services should be encouraged to work in partnership with pathology providers to extend the use of PoCT where appropriate.

PoCT can be used to guide the next step in a clinical pathway. Given the need for confidence in results, specimens are still sent for confirmatory testing in the laboratory after PoCT. This needs to be considered when determining whether to issue MBS item numbers for PoCT by non-pathology users.

**Rural and regional pathology**

Access to timely, local pathology services in some parts of Australia is challenging. Better utilisation of capacity within the public pathology sector, adoption of innovative diagnostic solutions and adequate MBS fees will assist in improving equity of access to pathology services across Australia.

Where there are state/territory-wide public pathology providers, regional and rural services are supported under the state government framework for hospital and outpatient pathology services via networked laboratories. However, public pathology providers are not adequately funded for MBS activity.

Of all the jurisdictions, Victoria has the least coverage of public pathology providers in regional and rural areas. There is only one public regional service Goulburn Valley Health Pathology and two metropolitan public pathology providers with rural/regional outreach – Austin (Kyneton) and Monash Health (Wonthaggi). This stems from Local Hospital Networks outsourcing their laboratory services to the private sector outside of these areas. Public pathology providers occupy the majority of metropolitan Melbourne hospital services. Unlike the private pathology sector, public pathology provides certainty of service. In the last 12 months, outsourced private pathology laboratories have closed in Alexandra, Colac, Benalla, Seymour and Stawell public hospitals. The lack of laboratories in these areas poses a risk to patients who require urgent testing.

Local testing at local hospital laboratories improves testing turn around times and ensures clinical liaison between the rural doctor and the local pathologist to maximise patient outcomes. However, this is not possible under the current funding arrangements. The costs of providing services in rural and remote areas is considerable. Economies of scale cannot be realised and NPAAC Supervision Requirements[30] require onsite specialist pathologist supervision for standalone services. MBS fees do not cover the costs of transporting specimens and performing testing.

30 NPAAC, Requirements for the Supervision in the Clinical Governance of Medical Pathology Laboratories (Fifth Edition 2018).

To make the rural services sustainable, there needs to be greater adoption of innovative service models driven through technology such as PoCT, digital pathology and other automated equipment suitable for lower volume testing.

Time sensitive, urgent testing will still have to be conducted locally. Typically, urgent testing is required in a hospital setting. There should be greater utilisation of capacity within local hospital laboratories to undertake MBS activity. A combination of hospital plus community referred work may provide adequate volume to keep some services viable. In areas where this is not viable, regional mobile clinic collection and pathology services could be funded.

MBS funding does not reflect the cost of providing pathology services in rural and remote locations. A public pathology Patient Episode Initiation fee of $2.40 does not cover the cost of specimen collection. There needs to be higher MBS fees for public pathology providers to service rural and regional patients locally. This could be achieved by introducing a new MBS item for referred pathology tests for rural and regional patients and could be based on the modified Monash areas as occurs for Management of Bulk Billed Services Item 74991.

Low MBS fees have meant that some public pathology providers have not invested in electronic systems to enable electronic referral and reporting to community requesters. Funding so that these systems can be enhanced would enable public providers to operate in the MBS funded space where there is a need.

Transportation of specimens also carries an increased risk of off-loads of patient specimens by commercial couriers thereby delaying testing. Enhancements to rural and regional transport services or innovative pilots e.g. using drone technology should be explored.

**Competition**

There is fierce competition in the metropolitan MBS market from the private sector to increase volumes to further capture economics of scale. The public sector has a role to play in the MBS market but is impeded by lower MBS fees and high rents for collection space paid by private pathology providers.

The public sector plays an important role in the MBS market – providing competitive pressure to keep bulk billing rates high and serving areas of need. However, public pathology providers do not receive specific community service obligation funding from the Commonwealth to provide MBS services in areas of need where no other pathology provider will operate.

There is a perception that performing pathology testing in a public laboratory is more costly than in the private system. However, public pathology providers generally are required to deal with the most complex cases which are under-remunerated in the MBS. There may be scope for closer coordination between public pathology providers in shared services such as procurement providing jurisdictional and regulatory barriers are addressed. The main way public pathology providers achieve economies of scale and retain viability is by performing testing on community patients funded by the MBS. They offer this testing at bulk billing rates which is incredibly important to members of the community with limited financial resources.

*Funding inequities*

Public pathology providers and patients who utilise their services are disadvantaged by receiving a lower MBS Patient Episode Initiation (PEI) fee and Bulk Billing Incentive (BBI) compared to their private pathology counterparts for the same service.

PEI fees cover the costs of collecting pathology specimens. Both private and public providers incur the costs which the PEI was intended to be used as reimbursement, such as collection centre rent and utilities, collection consumables, phlebotomist wages, marketing, education, transport, specimen preparation and handling, report delivery, invoicing and receipting. PEI fees range from $5.95 to $17.60 for the private sector but are a nominal $2.40 for every public pathology episode. The public PEI fee does not cover the costs of collection. In a suburban or metropolitan collection centre the staffing cost alone will exceed the PEI by a factor of 2 to 3. The real cost is in the range of $15-20 depending on the number of collections. It is also greater depending on location as some specimens have to be freighted to laboratories from remote areas.

The BBI for public pathology providers is a nominal $1.60 compared to between $2.00 and $4.00 for episodes tested by private pathology providers. The BBI is linked to the PEI. The introduction of the BBI was accompanied by reduction in some item fees which affected all providers.

Funding parity is required to enable the public sector to maintain its presence in the market, to offer effective competition and to provide bulk billed services in areas of need. This would ensure the Federal Government receives value for its investment in the pathology sector and patients can access the tests they need.

*Collection centre rents*

The majority of public pathology collection centres are located in hospital facilities. However, some public pathology providers have a number of Approved Collection Centres (ACC) in the community. Public pathology providers have been unable to compete for collection space due to high rents paid by private pathology providers. While the Department of Health has commenced compliance activity in relation to Part IIBA of the *Health Insurance Act 1973* (Cth), there has not been a widespread decrease in ACC rents. Further compliance related activity and a review of the definition of market rents is required to make headway in this area. Rents should reflect the amount charged for a medical suite by non-pathology provider in the same geographic location. There should be no inducements to refer to particular pathology providers.

**Appropriate use of pathology**

Fee for service MBS item fees do not reflect the cost of the tests performed. This may foster inappropriate testing practices which could be addressed by appropriate MBS fees, rules and incentives.

MBS pathology fees may exceed the cost of providing the test or be less than the cost of the tests. That is, there is a significant degree of cross-subsidisation within the Pathology Services Table (PST) of the MBS. There are therefore perverse incentives in the PST to conduct profitable tests at the expense of the less profitable tests. This can result in reduced access to less profitable tests and can waste health dollars if the profitable tests are subject to over-ordering.

Public pathology is a wide adopter of appropriate use of pathology. Training, on the spot advice and programs where public pathology works closely with clients around ordering protocols (e.g. Choosing Wisely) are in place to reduce inappropriate ordering. Public pathology services operate as stewards of testing as part of their responsibilities under the state government funded health system. They actively work towards appropriate ordering for best patient outcomes by processes such as adopting retest intervals which prevent duplication of tests. There is scope to increase this type of activity, but this requires additional funding to support project staff and enhance IT systems.

The MBS should disincentivise over ordering whilst encouraging appropriateness of pathology ordering. This could be achieved by ensuring rebates cover the true costs of pathology episodes or incentivising adoption of appropriate ordering practices.

Not all laboratories have the expertise to provide the full range of tests, and in a number of cases, it is appropriate for tests to be referred. However, in some cases the lack of concordance between test cost and MBS fee have led to tests being referred to other laboratories. When tests are referred, MBS Rule 6 applies. This rule can penalise the recipient laboratory due to i) coning (where the originating laboratory has already billed the full MBS payable tests before referring the other tests); ii) specific item is less than original item, or is reduced if the original item is reimbursed, (iii) referred item fee does not cover the costs of performing the test.

There is a need to review the rules relating to referred tests. Rule 6 must be amended so that tests referred to different Approved Pathology Authorities are paid at the original MBS rate and not subject to coning. This would ensure payment for referred work, which would facilitate access to tests and avoid co-payments.

There is also an opportunity to improve appropriate ordering practices by standardisation of test names, test processes and test intervals to reduce duplication and improve transferability of services between providers.

**Medicare Benefits Schedule**

There are issues with the MBS, compliance and claiming processes that impact pathology services.

*Medicare Benefits Schedule issues*

There is a need to ensure that the MBS reflects the cost of tests and contemporary clinical practice. Currently anatomical pathology, microbiology and genetic tests are relatively underfunded. Significant cost savings from laboratory automation, reduction in staffing and centralisation of services have been made over time, but these innovations have mainly come in the areas of high volume haematology and chemical pathology tests where there is little pathologist input and it has not been possible to extend these savings to some of the other areas of pathology particularly anatomical pathology which remains medically and scientifically labour intensive.

Some of the areas where the PST does not reflect current best practice are outlined below. For a more comprehensive analysis, please refer to Public Pathology Australia's submission to the MBS Review.

Anatomical Pathology – the anatomical pathology specimen complexity table does not recognise the current level of pathologist and technical input for these tests. There should be equity of classification based on comparable work. Updating the complexity table and increasing the fees for more complex anatomical pathology items would address gross underfunding of this area of pathology. There also needs to be additional level 7 items as there have been many changes in surgical practice since the complexity table was devised in the 1990s.

Under-remuneration of high complexity items introduces perverse incentives to maximise or exclusively focus on the reporting of simple specimens where there is less inequity of rebate. This affects the diversity and balance of pathology practices and may affect the availability of more complex diagnostic services across locations. It has already resulted in the consolidation of pathology practices into larger centralised practices where anatomical pathology is cross subsidised by other disciplines. As pathology rebates have reduced significantly in real terms since 2000, the ability to cross-subsidise loss making fields such as anatomical pathology has diminished.

Coning applies to general practitioner requested tests, limiting the MBS rebate to the three most expensive items requested. In anatomical pathology there is intrinsic coning and Rule 13 which dictates that a billing code for a specimen of higher complexity overrides one of a lower complexity or fee. Coning needs to be removed in anatomical pathology due to the inability to capture any economies of scale or savings in tissue pathology practice due to the high level of manual technical work in dissection and slide preparation and the need for pathologists to review all slides. Removal of coning would also provide a more transparent view of work performed for data and activity analysis.

Chemistry – some items do not reflect clinical ordering practice (e.g. 66500).

Genetics – genetics is a rapidly evolving area and the MBS does not cover an appropriate range of genetic tests and existing items are underfunded. Fees need to reflect the cost of sequencing (which has greatly reduced over time) plus the costs of interpretation.

Microbiology – there is a need to split generic molecular items into system-specific MBS items for Nucleic Acid Amplification Techniques (NAAT) testing as this better reflects the type of testing being undertaken in contemporary microbiology practice and will result in more meaningful data being collected. There is also a need to ensure public health items are appropriately covered – both in terms of cost of referral and in conducting the tests themselves (e.g multi-resistant organism typing, tuberculosis typing, respiratory virus typing, vaccine preventable disease typing).

Haematology – some item fees are inappropriately set such as complex positive antibody item fees compared to negative antibody items. Issuing blood products also needs to be appropriately funded as IVIg increases exceed 10 per cent year on year.

Immunology - some areas require greater focus on requester education such as the appropriateness and frequency of requesting antinuclear antibody (ANA) testing.

There is a need to develop accurate and transparent costing models which can form the basis for MBS fees and activity-based funding including the treatment of community service obligations.

*Implementation of MBS Review recommendations*

There are many significant changes of the PST proposed in the MBS Review and these are largely well reasoned and in line with modernised clinical care and testing approaches within pathology laboratories. Given the degree of cross-subsidisation within the MBS and the number of recommendations made by the MBS Review Taskforce, it is imperative that the Department closely engage with the pathology sector to plan the implementation of recommendations.

Changes to the PST will have to be scheduled to minimise disruption and balance negative changes with positive financial outlays. Modelling the impact of changes and fees based on input from pathology sector costings is important before the changes take effect.

Currently anatomical pathology, microbiology and genetics is underfunded, and is cross subsidised by chemistry and haematology. Anatomical pathology, microbiology and genetics should gain new items, have less coning and increased fees in balance, providing increased revenue for these disciplines as a proportion of all disciplines. There is a significant risk that the changes will reduce overall revenue in that balance, with chemistry and haematology not compensating. This would seriously threaten the viability of the pathology sector.

When changes to PST items are announced, there must be sufficient lead time to enable services to perform the IT work to program systems and educate requesters. In the cases of major changes to the PST, the lead time would be at least 12 months in the public sector as laboratory information systems and billing modules are third party software and IT support and billing teams may be based within public pathology providers or external to pathology but within Hospital and Health Networks.

A Pathology Advisory Committee consisting of pathology and Department of Health representatives could be established to oversee the necessary modelling and impact analysis and develop an implementation strategy. This committee could also be reconvened on an ad hoc basis to ensure the PST is contemporary and aligned with best clinical practice.

*Compliance*

Compliance with item restrictors would be better supported by greater education of requesters and consumers and implementation of clinical decision support.

Clinical decision support facilitates better requesting of pathology via up to date clinical advice at the point of care. A fully functional clinical decision support system should also feature consumer-based education which could be delivered simultaneously in the consultation or handed to the patient for consideration at a later stage. A clinical decision support system would need to be funded and integrated with clinical software – both general practice software and systems used in the hospital/outpatient/community health setting. To fully optimise clinical decision support, e-

ordering and laboratory information system interfaces need to be improved in some parts of the public pathology sector.

Often the laboratory is not in a position to verify compliance with item restrictors as the requesting doctor may not have indicated so on the request form. There could be an addition to Rule 24 which allows for other means of verification e.g. verbal telephone call or secure message which is recorded by the Approved Pathology Authority (APA).

*Medicare claiming issues*

There are issues with the claiming process which add to the administration cost and burden to both APAs and Services Australia (Medicare). There needs to be a framework for ongoing discussion between government and the pathology sector to discuss Medicare payment processes and issues. Some of these issues are identified below.

There should be a designated point of contact in Medicare for each APA to respond to issues. This would reduce delays and conflicting advice.

Pay doctor cheques should be replaced by Electronic Funds Transfer to reduce the burden and confusion experienced by patients when they receive cheques from Medicare.

To assist pathology providers claiming on behalf of a patient, the collection process could be taken as inferring consent to assign benefits.

There needs to be a reduction in processing time. The time from when an APP submits a claim electronically to when the claim is paid is around 14 days and may be out of sync with other areas of medicine.

Processes should be implemented that only trigger a payment rejection if there is a significant patient demographic discrepancy within a claim. Minor discrepancies between patient details provided by the requesting doctor and the details on the Medicare records currently consume considerable time to resolve between APAs and Medicare.

The date of service should be the date the specimen was tested rather than the date it was requested as multiple requests for future pathology testing may be produced on the same day for services that are to be performed on different dates.

There needs to be a simplified means of verifying the APA staff member contacting Medicare rather than having to provide private information from the APP.

There should be greater visibility of which APPs and connected to which APAs, particularly in the case where employment terminates.

If Medicare were able to receive larger claim quantities, this would enable more expedient processing.

Payment reports should always be issued when funds are transferred. Partial payment reports cause reconciliation issues.

There needs to be more information provided as to why claims are rejected as there is a lack of transparency about the rejection process. Currently providers receive rejections with rationales that do not make sense and need correction back to Medicare e.g. this is an inpatient or anaesthetic item when the issue is not related to these areas. There are also inconsistencies in rejections. Sometimes a claim is rejected by Medicare, then the same details are retransmitted, and the claim is accepted and paid.

There is a need for improved engagement and flexibility in Approved Collection Centre (ACC) registration processes.
Medicare should be able to accept amendments made in the ACC registration process without subjecting the applicant to resubmit the ACC registration in its entirety.

Where Medicare rejects an ACC registration, a telephone call and explanation should be given in addition to a form letter via mail.

Medicare should be able to accept a building address for a hospital based public pathology provider or ACC where there isn't an official street address or rates notice. Where existing laboratories and ACCs move within the same hospital precinct, new APLs or APPs should not be required.

There needs to be a longer window for ACC registration payment as 14 days in sufficient when providers use a government shared service financial process. Credit card payment options should be available.

Medicare should send ACC renewals and invoices to the APP and their nominated representative.

# Future Directions

People live longer and better through access to appropriate pathology testing to prevent, diagnose, treat and monitor disease. A strong, sustainable public pathology sector is required to improve equity of access regardless of test require or location and to drive the tests and treatments of tomorrow. Addressing the challenges in the preceding section in a way that fits with the future direction of pathology will assist in securing this vision.

The pathology services of the future will have greater consumer involvement and see faster adoption of new technology to improve patient outcomes. Locally based pathology testing with accurate, fast and direct delivery of results and local clinical liaison and advice should be the norm.

Public pathology services have always put patients first. This will move to people-centred care with greater involvement of people in how and where they access services and increasing use of pathology for prevention. There will be more personalised care closer to home possible through greater use of technology. Pathology funding and policy will need to adapt to ensure that patients receive the best possible outcomes.

Putting people at the centre of pathology also reflects increasing collaboration between the pathology team and requesting clinicians. It is important to note that MBS funding for pathology does not universally incentivise this interaction nor testing relating prevention, despite the greater benefits to patient care and better utilisation of pathology that stem from this involvement.

Putting people at the centre of pathology also reflects the role that pathology plays in providing benefits to the community. Public pathology provides services to vulnerable communities, plays a critical role in public health and has patient and system-wide data for planning, policy, research to improve patient outcomes and experience.

Advances in science, medicine and technology, data and analytics is rapidly transforming pathology services. Personalised or precision medicine is a case in point. Precision medicine has been made possible by innovations in genomics technology leading to accurate diagnosis and focused therapies. Growth in pathology will continue to increase as precision medicine research is translated into clinical practice. It is imperative that genomic tests be cost-effective, timely, clinically appropriate and adequately funded.

There has been increasing integration between traditional pathology disciplines/specialities, but the MBS has not kept pace with developments. For example, there is increasing use of molecular techniques coupled with use of mass spectrometry for proteomic and metabolomics biomarkers in chemistry which will greatly improve personalised, preventative care and treatment protocols in oncology services and chronic disease. Molecular techniques are also being utilised in microbiology, with rapid nucleic acid amplification techniques and greater use of genomics for identification of public health pathogens. The MBS needs to be amended to reflect contemporary practice.

The MSAC process for MBS listing for genomic items needs to be fit for purpose. It is currently cumbersome and time consuming, requiring multiple applications for similar tests and health economic data that is not available for new technologies despite their widespread use.

Genomic tests are generally not time critical and are best located in a small number of sites which pool data into centralised data repositories for bioinformatic purposes. While there needs to be local laboratories for time critical tests, such as those needed by hospital-based clinicians under four hours, smaller laboratories may not have the patient or clinician numbers to support safe, efficient and effective service provision of certain tests. There are tests which require particular expertise, equipment, supervision and/or interpretation and these are referred between laboratories and pathology providers. The MBS rules pertaining to referred tests such as Rule 6 need to be amended to support this practice.

In order to meet demand for fast, locally-based pathology solutions, particularly in regions which have traditionally had poorer access to pathology services such as remote and rural areas, there is an opportunity to increase the utilisation of PoCT, particularly in haematology, chemistry, microbiology and immunology. There needs to be improved quality and reliability of PoCT services before it is mainstreamed across all areas. Pathology providers are best placed to lead service change because they have been managing PoCT networks for some time, integrate PoCT results with laboratory information systems and medical records, and are the experts in testing and quality assurance.

Digital pathology can also provide access to speciality services across distances. Virtual microscopes can be used in microbiology, anatomical pathology and haematology to enable timely advice and consultation to clinicians remotely. There must be appropriate funding for equipment and IT infrastructure and finalisation of the NPAAC Requirements for this to occur to an adequate standard of care. A rural and remote MBS pathology item would assist in securing services to patients in these areas.

Bioinformatics will improve diagnostics and the broader health care system. Building digital and computational technologies into pathology needs to be supported. Pathology has extensive datasets which would be used to predict and tackle trends in health, better inform health policy and prevention. There can be greater system-wide benefits gained by viewing pathology as a key partner, rather than just as a cost.

Public pathology has been leading the way with teaching, training and research to help future proof healthcare and meet diverse and evolving needs. They are at the forefront of new test development and emerging technologies by providing specimens, datasets, testing and actively supporting the agile translation of research outcomes into clinical practice. Increasing clinical complexity of patient cases places greater demand on the pathology workforce to engage in teaching and training. A fit for the future workforce plan which covers pathologists, scientists and other supporting staff such data analytics staff could be useful in identifying any potential workforce shortages early.

Digital tools, apps, and online support could assist both patients and clinicians. Patient education is required in personalised PoCT, health literacy and use of genomics information. Clinical decision support algorithms and artificial intelligence attached to electronic ordering can detect and reduce unwarranted variations in pathology test ordering and associated costs. Public pathologists have played a strong role in appropriate ordering initiatives and are well placed to advise on clinical decision support parameters. There would need to be an investment in e-ordering (particularly in outpatients and community patients) to facilitate the widespread adoption of clinical decision support.

The Federal Department of Health in conjunction with the Australian Digital Health Agency could also improve electronic pathology referral pathways to ensure consistency of customer experience (e.g. across pharmacy and pathology). This would facilitate the new telehealth MBS items in a way which gives patients the ability to choose their preferred pathology provider.

The move to people-centred care would be facilitated by better utilisation of the capacity and capability of the public pathology sector, combined with changes to the MBS and an investment into enabling technologies that will see appropriate pathology tests delivered when and where they are required.

# Conclusion

Public pathology is a frontline clinical service that lies at the heart of healthcare. It enables patients to access the tests they need when and where they need them, including in times of public health or other emergencies. Public pathology drives appropriate testing that helps improve patient outcomes and reduce the downstream costs of healthcare.

The public pathology sector is well placed to move to a people-centred service that is fit for the future. This would be facilitated by better utilisation of the capacity and capability of the public pathology sector particularly in rural and regional areas, and an investment into enabling technologies. These technologies include electronic ordering, pathology governed point of care testing, greater automation in pre and post analytical processes, and digital support for clinicians and patients. This could be facilitated with changes to MBS items and fees including a new MBS item for rural and regional pathology provision.

Public pathology is a key partner and enabler – not just a cost – which benefits patients and the broader health system.

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