

Estimating the
Pathology
Productivity
Dividend

Technical Note



EY

Building a better
working world

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26 April 2016

Private and confidential

Dear Liesel

Thank you for the opportunity to prepare the technical note on 'Estimating the Pathology Productivity Dividend' ("technical note") for Pathology Australia. As per our engagement agreement dated 16 March 2016, we are pleased to present you with the findings from this technical note.

The technical note is an evidence-based analysis of the pathology industry, which specifically examines: i) the volumes and costs across the entire MBS items for pathology; ii) the productivity of the pathology industry and the dividend efficiencies delivered; and iii) Australia's pathology fees against other international comparators

The technical note is based on reliable and verifiable official data sources to ensure the transparency, robustness, and replicability of the results. The document has also benefited from extensive primary source data provided by the pathology industry detailing: a) for the first time, the coning that takes place, and b) the cost breakdown of providing pathology services in Australia.

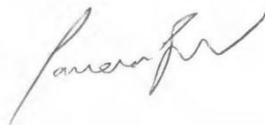
The report has been constructed based on information current as of 26 April 2016, and which has been provided by the Client and other industry stakeholders. Since this date, material events may have occurred since completion which is not reflected in the report.

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If you have any questions, please do not hesitate to contact myself on (03) 9655 2659 or Chris Roberts on (02) 6267 3990 so that we can address any issues you have.

Yours sincerely



Cameron Bird, Partner
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Ernst & Young was engaged on the instructions of Pathology Australia to examine the pathology productivity dividend in Australia ("Project"), in accordance with the engagement agreement dated 16 March 2016.

The results of Ernst & Young's work, including the assumptions and qualifications made in preparing this technical note, are set out in Ernst & Young's report dated 28 April 2016 ("Technical Note"). The Technical Note should be read in its entirety including the cover letter, the applicable scope of the work and any limitations. A reference to the Technical Note includes any part of the Technical Note. No further work has been undertaken by Ernst & Young since the date of the Technical Note to update it.

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Executive summary

Government funded expenditure on pathology services in Australia was \$2.5bn in 2014-15. In an environment where the Budget is facing fiscal challenges, Pathology Australia has commissioned EY to undertake an evidence-based analysis of the performance and value for money of the pathology industry. The EY analysis draws on official data sources and primary source data from the industry.

Key findings

- ▶ In 2014-15, the cost to Government in 2014-15 would have been \$4.9 billion dollars without the Pathology industry delivering productivity gains and unpaid services through coning. The industry delivered \$2.4bn in savings to the Government. This was the result of
 - a) \$2.0bn in productivity improvements; and
 - b) \$0.4bn in free tests provided as part of the “coning arrangements”, which only allow for the three most expensive MBS pathology items to be funded per pathology request from general practitioners.
 - ▶ These tests which are effectively provided free of charge by the pathology industry have steadily increased from \$50m in 1999-00 to over \$450m in 2014-15, or 5% to 17%¹ of pathology benefits.
- ▶ The industry through consolidation, economies of scale, technological advancement, specialisation and operations has over the past decade and a half delivered an average annual growth in productivity of 4.3%, compared with the Australian industry average of 1.5%.
- ▶ Since 1999-00, Pathology expenditure has grown at an average annual rate of 5.8%. This has been driven by utilisation (referrals by GPs and Specialists) and demographic forces (growth in population and ageing); prices (fees for services) have fallen by an average annual rate of 0.4% over the same period.
 - ▶ Over the same period, pathology’s share of Medicare payments has fallen from 16.0% to 12.5%.
- ▶ When the costs of providing pathology services in Australia are compared internationally, Australia is a leader in delivering value for money, while maintaining quality of service.
 - ▶ EY builds upon a recent Grattan report,² where it compares what a selection of nations are paying across five comparable pathology tests. Using the fees presented in the Report, with coning applied – i.e. tests provided for free, implies Australia is able to deliver those five tests at their current volumes (32 million services) for a cost \$45 million cheaper than Canada and \$381 million less than the ‘high fee US Medicare’ selected by Grattan.

¹ Precise coning figures have been rounded to protect commercially sensitive information. The percentages and totals presented will not correspond to exact figures. \$450 million has been rounded to the nearest \$25 million, 17% higher or lower by 1%.

² <https://grattan.edu.au/report/blood-money-paying-for-pathology-services/>

Figure 1: Cost of MBS pathology services

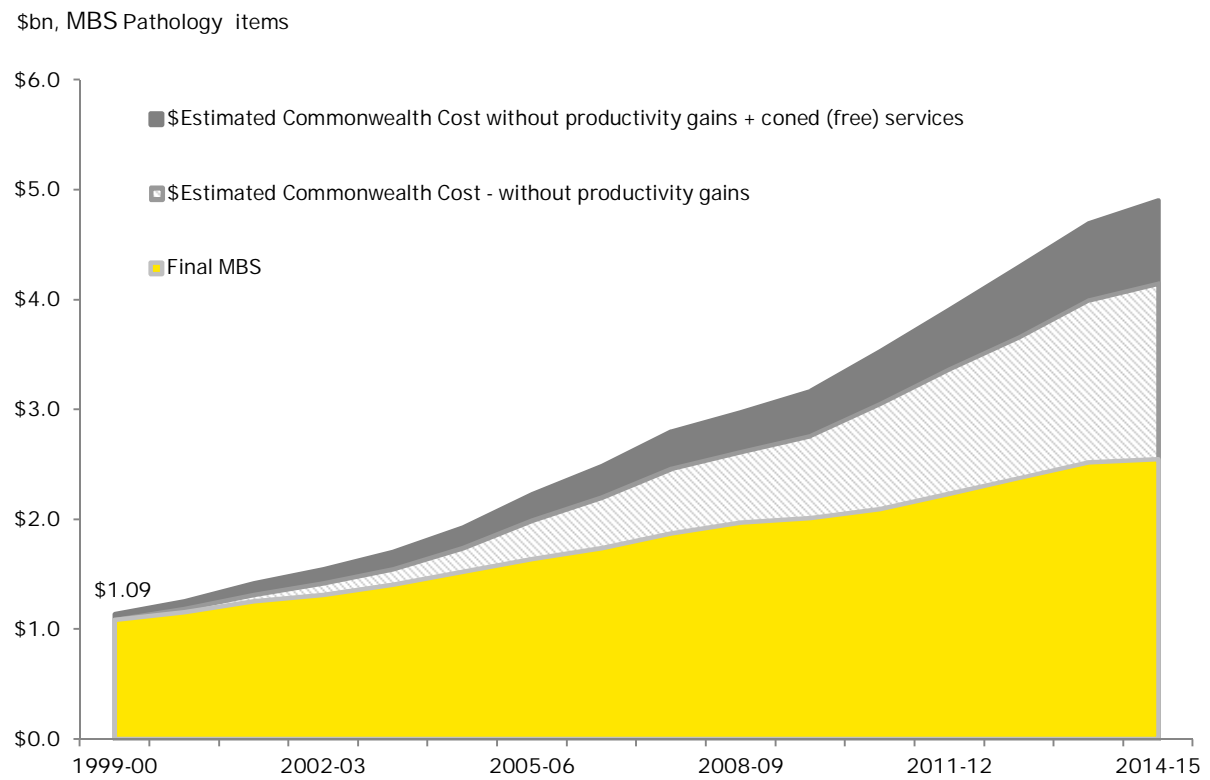


Figure 2: Productivity

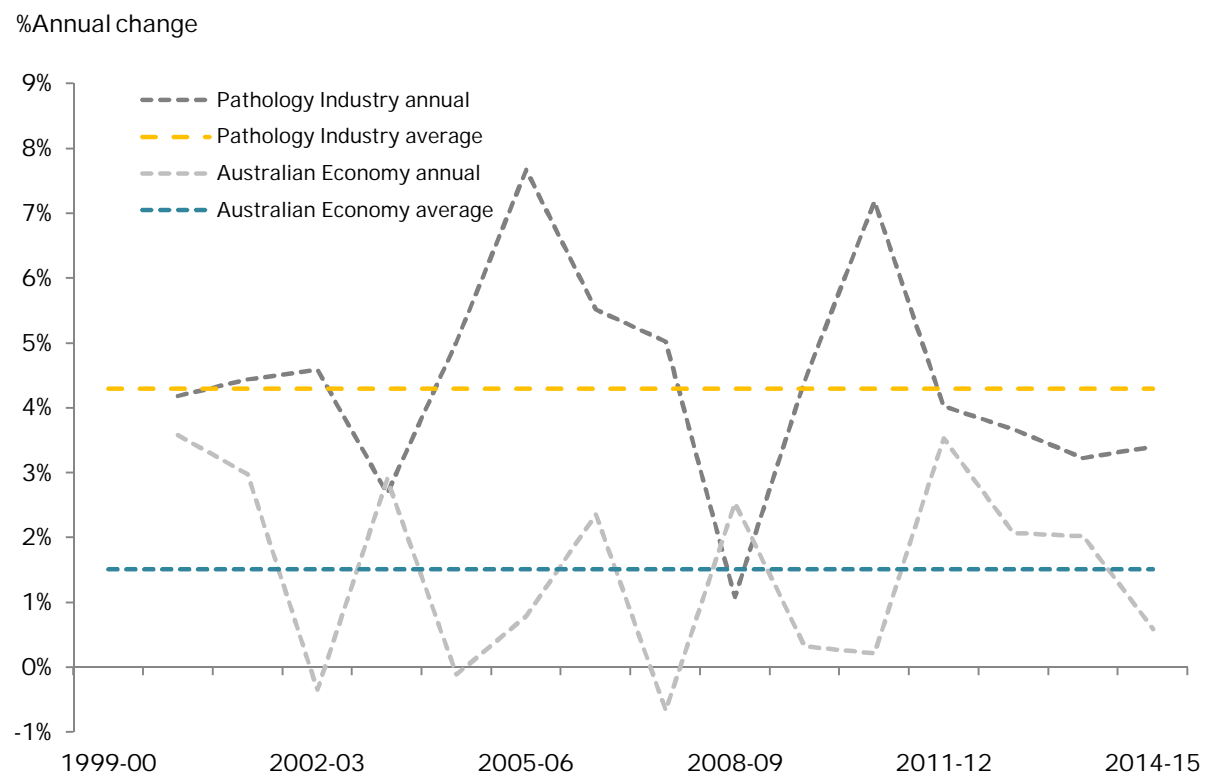


Figure 3: Coning (non-funded tests)

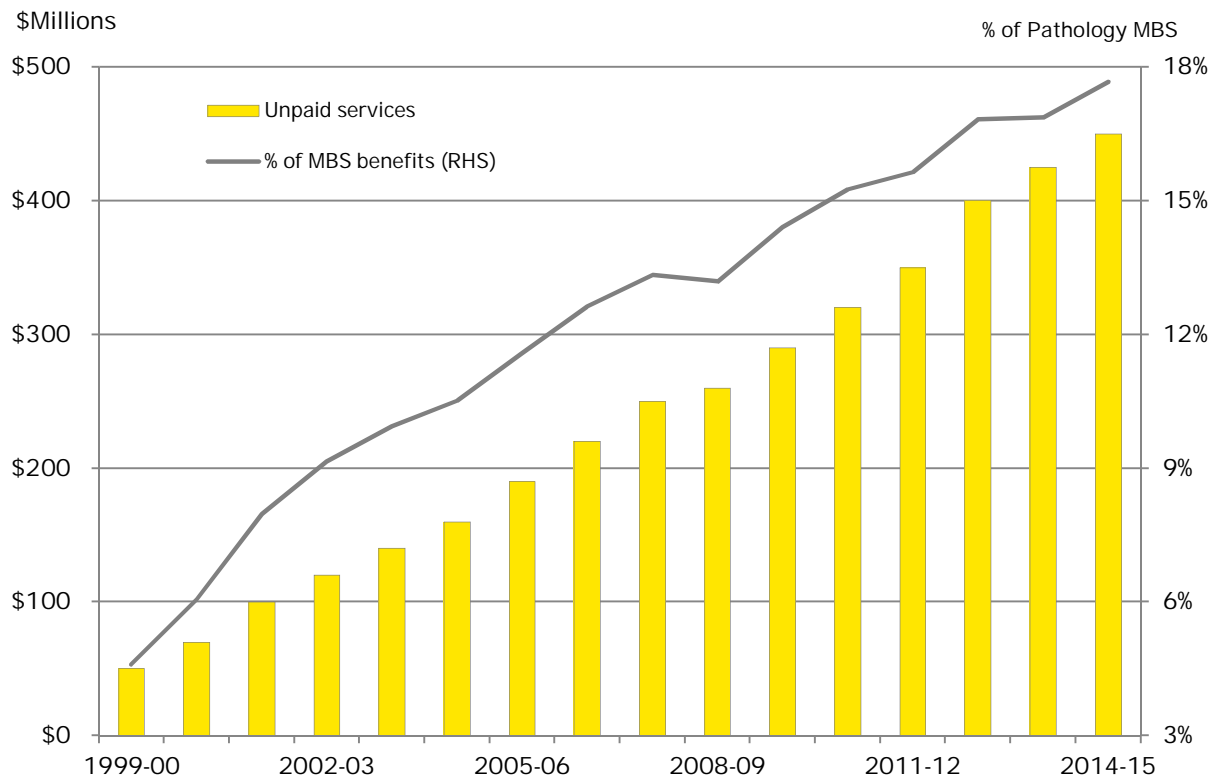
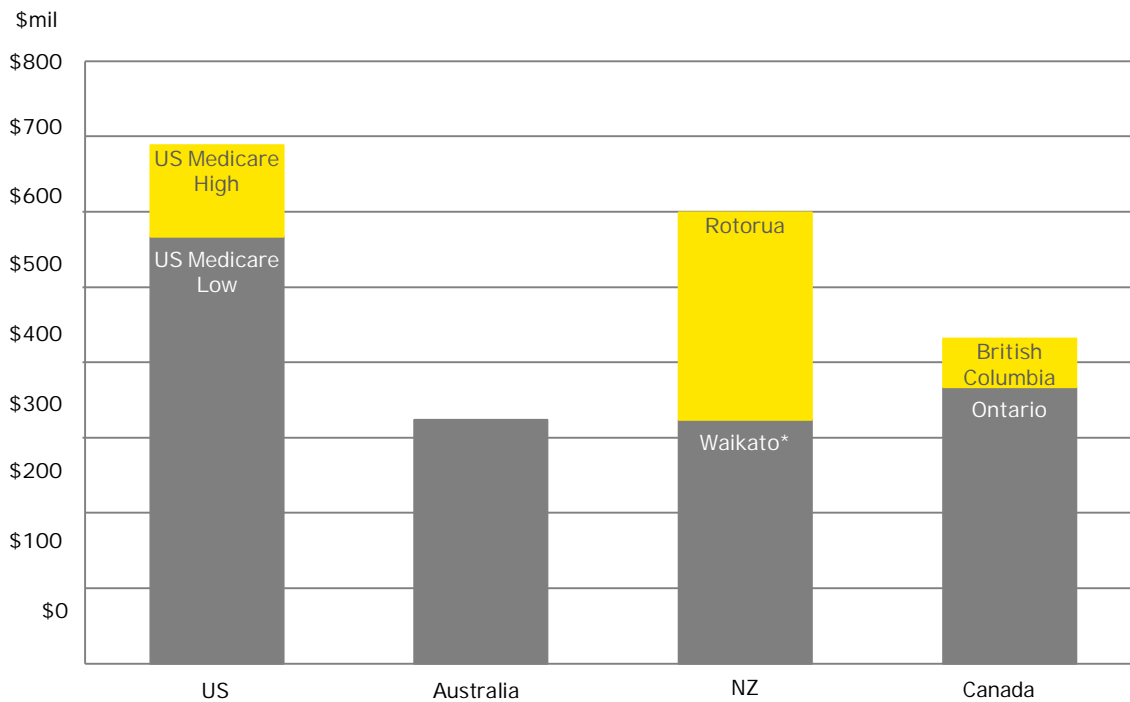


Figure 4: International fee comparison



Conclusions

The fee structure in Australian Pathology is complex. The Australian Government has received significant cost savings delivered by the Pathology industry through productivity gains and the Grand Cone of 93% over the 15 years. Coning is now responsible for 17% of total MBS pathology expenditure and is a direct cost transfer from Government to industry.

Free tests provided as part of the coning arrangements have been steadily growing as a proportion of total pathology services. This is adversely impacting on industry viability. This coning system must also be taken into account when making comparisons between fees in Australia and other jurisdictions.

In terms of profitability, the capital returns by publicly listed pathology providers are around 1/3 below that of the average equity returns of the top 20 companies listed on the Australian Securities Exchange.

The Pathology industry is required to make investments in capital to improve productivity and additional investments to achieve further productivity may be placed at risk if incentives are not properly managed.

Australia has accessible, freely available, high quality, low cost to Government, and efficient pathology services achieved through what was long running co-operative arrangements between the Australian Government and the private pathology sector.

The latest MoU, negotiated in July 2011 was due to expire on 30 June 2016. The agreement became moribund after the Government cancelled it with the budget in May 2014. The Australian Government must work collaboratively and co-operatively with the sector in order to underpin and improve upon Australia's high quality pathology service.

1. Introduction

EY was commissioned by Pathology Australia to deliver an evidence-based technical note that examined:

- ▶ the volumes and costs across the entire MBS items for pathology
- ▶ the productivity of the pathology industry and the dividend efficiencies delivered
- ▶ Australia's pathology fees against other international comparators.

This analysis of the performance of the pathology industry has been undertaken in a period where the Australian Government Budget faces fiscal challenges. As a majority government funded service, the Australian Government is rightly looking to ensure that its outlays on pathology services are cost effective, while ensuring the delivery of quality outcomes.

The modelling methodology used in this technical study is consistent with international best practice and is based on reliable and verifiable official data sources to ensure the transparency, robustness, and replicability of the results. The document has also benefited from extensive primary source data provided by the pathology industry detailing for the first time, the coning that takes place, and the cost breakdown of providing pathology services in Australia.

1.1 Background

Pathology services in Australia are provided by laboratories in the public and private sectors. Public laboratories operate from public hospitals and are mainly block funded within the state government's public hospital funding allocation; private laboratories are majority funded by the Australian Government via a fee-for-service basis through the Medicare Benefits Schedule ("MBS"). Public laboratories also access Medicare Benefits where possible.

Since 1996, there have been several memoranda of understanding ("MoUs") agreed between the Australian Government and the pathology sector, which have governed both the price and volume of pathology services. The latest MoU, negotiated in July 2011 was due to expire on 30 June 2016. The agreement became moribund after the Government cancelled it with the budget in May 2014. These price/volume agreements were designed to principally achieve a fixed target rate of expenditure growth for pathology funding by Government. At the same time, the agreements provided the industry with a stable operating environment and guaranteed level of growth, which would allow for the private investment necessary to realise efficiency improvements.

Since the introduction of MoUs in 1996, the industry has undergone a process of consolidation and this combined with the necessary capital investment has underpinned strong productivity gains. Small providers, many of which are in the not-for-profit sector associated with teaching hospitals and hospitals operated by major religious denominations, have also survived by occupying niche segments of the market.

Several budget announcements have been made over time, such as the recent announcement to cut the Bulk Billing Incentive payments from 1 July 2016.

The average number of ordered tests per referral continues to increase as the population ages, the number of people living longer with multiple medical conditions increases and as new tests become available. This trend makes for an increasing number of referrals to have more than three tests, which means an increasing number of tests are being performed for free under the coning arrangements discussed in Section 1.3. This is also drawn out in the analysis.

1.2 Patient episode initiation (“PEIs”) fees

PEI fees are designed to partially compensate for the costs associated with the collection, management of specimens and delivery of results – not for the pathology tests themselves. The Pathology Services Table (“PST”) lists the pathology tests for which Medicare benefits are available, their Schedule fees and conditions for use.³ The PST contains item numbers relating to pathology episodes which describe the various circumstances for collection of specimens. These are called PEI items and each item has a corresponding fee.

Depending on where the specimen is collected, the PEI fee will vary. However it is still considered part of the patient episode. For example; if a patient is billed for the episode, they are entitled to receive a rebate for the PEI fee charged. In the instance that the patient is bulk-billed, the Medicare benefit paid to the approved pathology practitioner will also include the PEI rebate. Only one PEI item is claimable per patient episode no matter how many pathology tests are performed.

1.3 Episode coning

For pathology services under the MBS, a patient episode comprises a PEI and a pathology service or services which are requested for a single patient, on the same day by one or more practitioners.

“Episode coning is an arrangement, which places an upper limit on the number of services in an episode for which Medicare benefits are payable and was introduced to prevent over servicing by doctors. Generally, when more than three items are requested in an episode by a general practitioner for an out-of-hospital service, Medicare only pays for the three most expensive items. Pathology services requested for hospital in-patients, or ordered by specialists, are not subject to these coning arrangements.”⁴

In practice, a GP or specialist will request a pathology test (e.g.: blood count, iron levels etc.)

- ▶ This will be covered under an MBS item:
 - ▶ The average Medicare benefit for a pathology request is around \$25 per MBS item
- ▶ However, a single pathology request may include a number of tests or groups of tests, in some cases more than 20 tests
- ▶ If more than three pathology results are requested by a GP; only the three most expensive tests are funded by the MBS (the ‘Grand Cone’). Specialist referrals are not coned.

In short, episode coning constrains the growth in Australian Government expenditure outlays for pathology services. This is achieved exclusively by the industry providing the requested pathology results free of charge.

‘The Grand Cone’ is a mechanism first introduced in 1995 to save taxpayers money as described above. In addition to the Grand Cone, there is test grouping and individual item number coning arrangements. For example, where chemical tests, such as 66500 can have up to 29 individual items (detailed below) to test and report but are billed as a single MBS item number, charged once to the taxpayer. We have not obtained the data necessary to quantify the testing done for free as a result of coning within an item, so our analyses in this paper only adjusts for the Grand Cone, and therefore still understates the level of productivity gain provided to Government.

³ <http://www.health.gov.au/internet/main/publishing.nsf/Content/health-pathology-pst-index.htm>

⁴ <http://www.health.gov.au/internet/main/publishing.nsf/Content/pathqa#coning>

For example, a pathology result requested for MBS item number 66500 is detailed as testing the following:

"acid phosphatase, alanine aminotransferase, albumin, alkaline phosphatase, ammonia, amylase, aspartate aminotransferase, bicarbonate, bilirubin (total), bilirubin (any fractions), C-reactive protein, calcium (total or corrected for albumin), chloride, creatine kinase, creatinine, gamma glutamyl transferase, globulin, glucose, lactate dehydrogenase, lipase, magnesium, phosphate, potassium, sodium, total protein, total cholesterol, triglycerides, urate or urea - 1 test ".

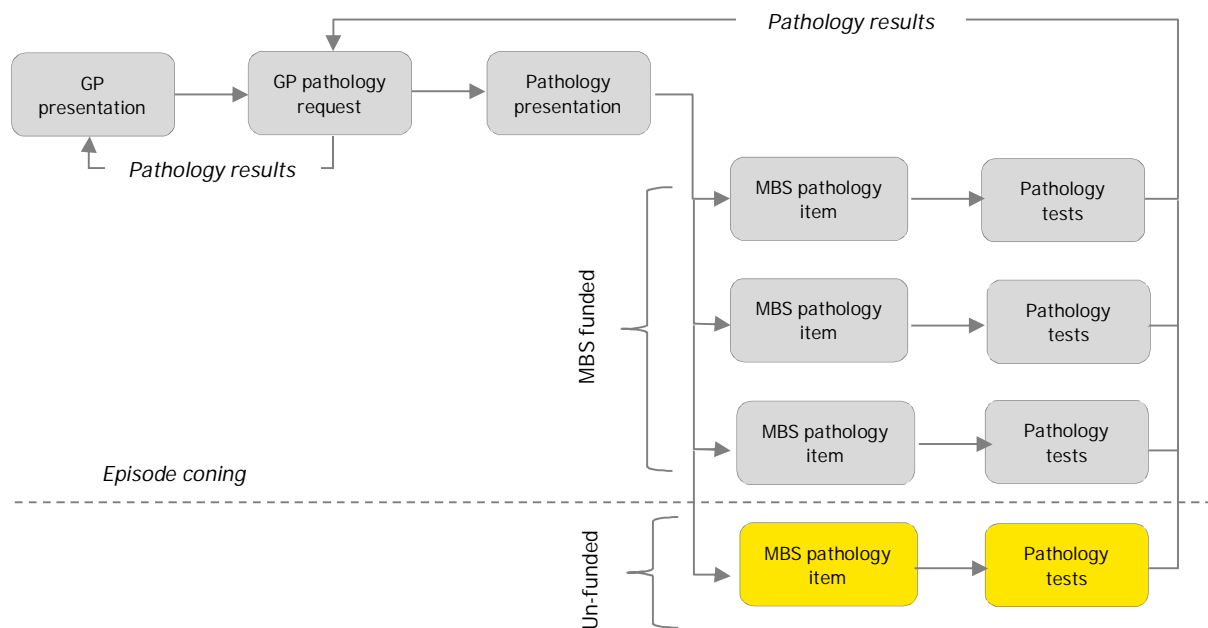
Each of these indicates a normal/abnormal function of the body and each one requires reagents and processes to complete. The cost of all these tests above the first 5 is absorbed by the industry provider.

Another example are the hormone tests performed under the, MBS item number 66695, involving:

"Quantitation in blood or urine of hormones and hormone binding proteins - ACTH, aldosterone, androstenedione, C-peptide, calcitonin, cortisol, DHEAS, 11-deoxycortisol, dihydrotestosterone, FSH, gastrin, glucagon, growth hormone, hydroxyprogesterone, insulin, LH, oestradiol, oestrone, progesterone, prolactin, PTH, renin, sex hormone binding globulin, somatomedin C(IGF-1), free or total testosterone, urine steroid fraction or fractions, vasoactive intestinal peptide, - 1 test ".

Again, the cost of all these tests above the first 5 is absorbed by the industry provider.

Figure 5: PEI pathway for pathology services



Note that Medicare's systems do not capture coning data so the Government is unaware of the level of testing that the industry undertakes for free.

1.4 Pathology an integral part of primary care

Pathology, more than any other in the field of medicine, has science at its core. It is what converts a suspected diagnosis from a General Practitioner or a Specialist Physician into a confirmed diagnosis. Seventy per cent of all medical diagnoses and 100% of all cancer diagnoses rely on a pathology report for diagnosis and care management.⁵ Almost all Government funded private pathology tests are done at the request of doctors.

Pathology should not be so much considered a cost, but rather a cost saver⁶. In the absence of a pathology test, doctors would find it difficult to prescribe the right medicine, confirm disease or disease progression. *Much like the rest of the primary care system, pathology is there to detect, diagnose and treat cases before they escalate.* In absence of early detection and correct treatment, patients may experience deteriorating symptoms, prolonged discomfort and potentially serious illness and the healthcare expense to Government would grow.

Pathology costs have grown since 1999-2000 but have fallen as a share of the expense to Government, shown in Figure 6. In subsequent sections, we will unpack the growth in Pathology services into population, ageing, utilisation and price.

Pathology delivers vital diagnostic services as part of evidence-based medicine and it is particularly important in the case of very young children who can't communicate their symptoms. A common example is for detection of a virus, MBS item number 69496, which allows for 3 or more tests of "Detection of a virus or microbial antigen or microbial nucleic acid (not elsewhere specified)". This test is exploratory in nature and it is common to undertake multiple tests but Medicare is only billed for 1 service covering only 3 tests. The cost of all of these tests above the first 3 is absorbed by the industry provider. It is also one of the most utilised services delivered to children aged 0-4.

Table 1 –Top 10 Pathology MBS Items, Children 0-4, 2015			
MBS Item number,	Item Description	# of Items	% MBS Items
Children 0-4		2014-15	2014-15
69333	Urine examination (including serial examination)	137,718	12%
69496	3 or more tests of 69494, Detection of a virus	105,071	9%
65070	Full blood count	101,287	9%
66512	5 or more tests of 66500, Chemical test	83,970	7%
69345	P3, Pathogen test, (a) pathogen identification and antibiotic susceptibility testing	80,913	7%
69336	P3, Microscopy of faeces for cryptosporidia and giardia	65,456	6%
69303	P3, Culture and (if performed) microscopy to detect pathogenic micro-organisms	54,346	5%

⁵ "Evidence-practice gap in GP pathology test ordering", The University of Sydney, School of Public Health, June 2009. [http://www.health.gov.au/internet/main/publishing.nsf/Content/9C300FE48F876E95CA257BF0001ACE0E/\\$File/Evidence-practice%20gap%20in%20GP%20pathology%20test%20ordering.pdf](http://www.health.gov.au/internet/main/publishing.nsf/Content/9C300FE48F876E95CA257BF0001ACE0E/$File/Evidence-practice%20gap%20in%20GP%20pathology%20test%20ordering.pdf)

⁶ http://www.thecie.com.au/wp-content/uploads/2016/04/Economic-value-of-pathology_-Final-Report-April-2016.pdf

Table 1 –Top 10 Pathology MBS Items, Children 0-4, 2015

MBS Item number,	Item Description	# of Items	% MBS Items
Children 0-4		2014-15	2014-15
66596	P2, Iron studies, consisting of quantitation	36,253	3%
69495	P3 – MICROBIOLOGY, Detection of a virus or microbial antigen. 2 tests described in 69494	31,443	3%
69306	Microscopy and culture to detect pathogenic micro-organisms from skin	31,250	3%

Pathology is also vital for those living with medical conditions and disease. For example, MBS item number 65120 covers the tests which allow somebody on Warfarin, a blood thinner used to treat life threatening heart conditions, to monitor the treatment. This is the third highest MBS item requested for those aged 85 and over.

Table 2 –Top 10 Pathology MBS Items, Adults aged 85+, 2015

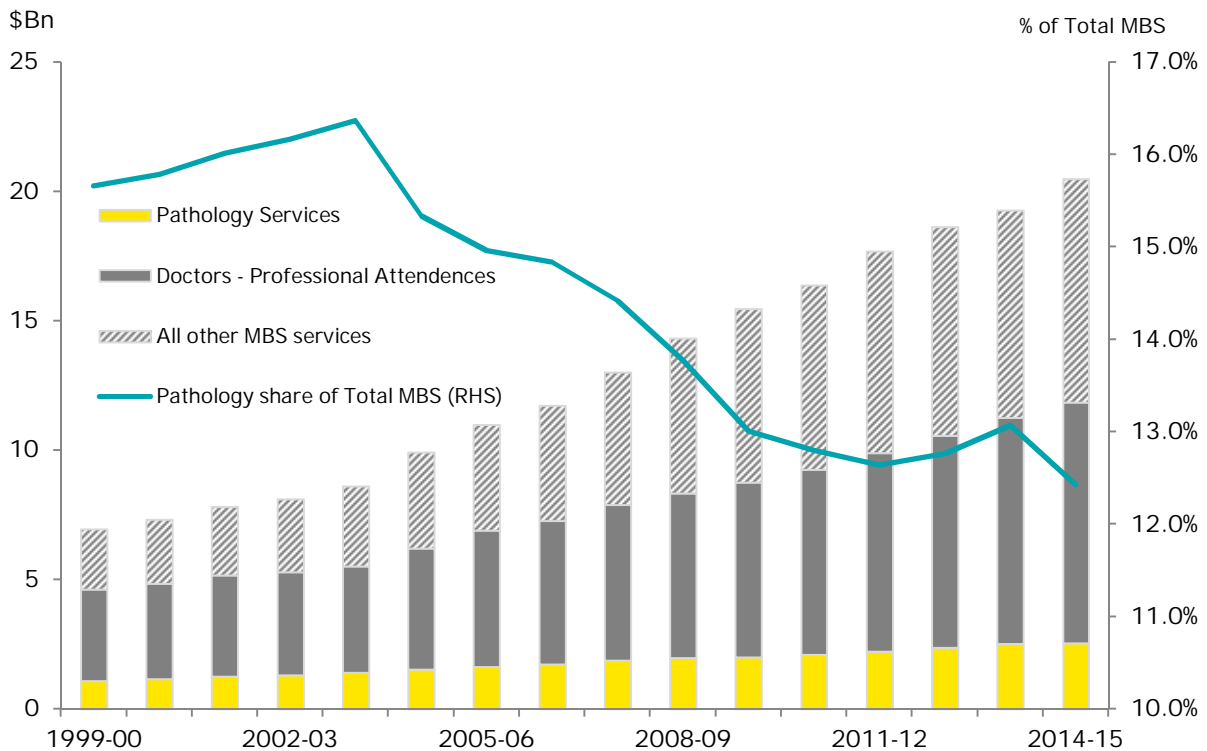
MBS Item number,	Item Description	# of Items	% MBS Items
Aged 85+		2014-15	2014-15
66512	5 or more tests of 66500, Chemical test	1,074,208	21%
65070	Full blood count	837,972	16%
65120	Prothrombin time (including INR where appropriate)	667,224	13%
69333	Urine examination (including serial examination)	376,292	7%
66596	P2, Iron studies, consisting of quantitation	219,718	4%
66716	TSH quantitation	201,921	4%
66719	Thyroid function tests + free thyroxine, free T3, for a patient and must satisfy (a) the patient has an abnormal level of TSH	104,522	2%
66833	25-hydroxyvitamin D, quantification in serum	89,763	2%
72816	Examination of complexity level 3 biopsy material with 1 or more tissue blocks	79,413	2%
66838	Serum vitamin B12 test	63,705	1%

1.5 Measuring pathology outlays

A number of components make up the Australian health system – hospitals, medical benefits, pharmaceutical benefits, and private health insurance. The MBS, under which pathology falls, is the largest component of Commonwealth government health spending.⁷

Although pathology services represent over one-third of all MBS services in 2014-15, it only accounts for 12 per cent of total benefits paid, compared with the largest MBS item – Professional Attendances – which claims a more equal share of MBS benefits (42.7 per cent) for its share of services (48.0 per cent). See Figure 6 for further comparison.

Figure 6 – Pathology share of the Medicare Benefits Payments



Over the last 15 years, the number of pathology services has risen sharply from less than 58.7 million per annum more than doubling to 128.8 million per annum.^[1] This translates into an average annual growth rate of 5.4 per cent. These figures are from public Medicare Statistics and therefore do not include the additional services performed for free under coning rules. Over the same period, there has been an increase in the use of more expensive tests more often, implying an increase in the cost of the average test by 0.8% per annum. This has increased the value of services delivered by Pathology excluding the Grand Cone by 6.2% per annum.⁸ At the same time, actual fees received on like-for-like tests by pathology providers have decreased 0.4% per annum. This has contained

⁷ Hospitals are the largest expenditure item by all levels of Government but Primary care is the largest for the Commonwealth according to AIHW.

^[1] http://medicarestatistics.humanservices.gov.au/statistics/do.jsp?_PROGRAM=%2Fstatistics%2Fmbs_group_standard_report&DRILL=on&GROUP=6&VAR=services&STAT=count&RPT_FMT=by+time+period+and+state&PTYPE=finyear&START_DT=199907&END_DT=201506

⁸ To calculate the fees received by Pathology providers, all tests have been held at their price in the year 1999/2000. Tests that have been introduced since 2000 are held at their initial price.

total MBS benefit growth to 5.8 per cent on average per annum. The difference between benefits and services is substantially lower than the rate of inflation over this period. This implies a real decline in the price paid per test and highlights the efficiency dividends returned to the Government.

Australia has accessible, freely available, high quality, low cost to Government, and efficient pathology services achieved through what was long running co-operative arrangements between the Australian Government and the private pathology sector.

Pathology is the most accessible and affordable medical service and has the highest bulk-billing rate of any medical service with over 98.7% of Out of Hospital Pathology Services being bulk-billed in 2014-15.⁹ In measuring total pathology outlays funding by the Australian Government, it is important to define the types of services that are covered according to their Medicare item listing. There are around 430 individual pathology services listed under Medicare that have been identified as eligible to receive a rebate. These individual items are classified according to the following 13 main categories.

- | | |
|---------------------|---|
| 1. Haematology | 8. Infertility and Pregnancy Tests |
| 2. Chemical | 9. Simple Basic Tests |
| 3. Microbiology | 10. Patient Episode Initiation |
| 4. Immunology | 11. Specimen Referred |
| 5. Tissue Pathology | 12. Management of Bulk Billed Services |
| 6. Cytopathology | 13. Bulk Billed Pathology Episode Incentive Items |
| 7. Cytogenetics | |

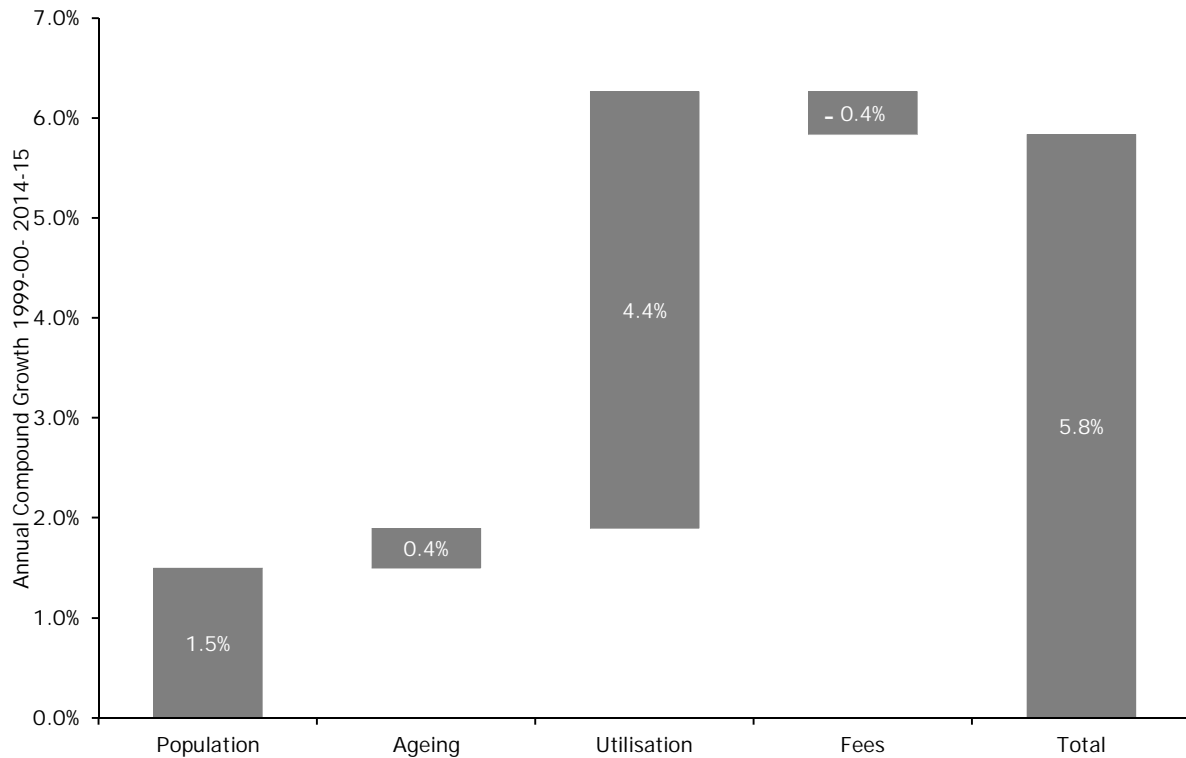
Medicare expenditure and service data by age and gender on individual pathology items are available on a monthly, quarterly and financial year basis. EY extracted the entire pathology section of the MBS from the Medicare Statistics website maintained by the Department of Human Services from 1993-94 and by age and gender. This involved more than 20,000 data requests of the Medicare Statistics interface. This provided a rich dataset for interrogation and modelling purposes.

Such a rich set of data allowed us to examine what age and gender groups are ordering what test and the average benefit paid for each MBS item. By holding components constant, we examined the effect of change of each component in isolation. These components are broken into, population growth, population ageing, the average utilisation for each cohort and the average fee charged per service.

The results in Figure 7 measure the impact of each component on the final annual growth in cost to Government of 5.8%.

⁹ <http://www.health.gov.au/internet/main/publishing.nsf/Content/Annual-Medicare-Statistics>

Figure 7 – Annual rate of growth MBS funded Pathology, by component



The largest contributor to growth in pathology outlays remains the growth in the demand for services – i.e. referrals by GPs and Specialists. When you combine utilisation rates – average annual test per person with the demographic change (population growth and ageing) there is significant momentum around growth in total outlays, which is completely out of the control of the pathology industry.

Additionally, the trend increase in utilisation is resulting in a growing proportion of tests being performed by the pathology industry free of charge under the coning arrangements that are in place.

2. Approach

2.1 Methodology for modelling public funded pathology expenditure

The EY approach to modelling public pathology expenditure funded by Medicare consisted of the following stages.

2.1.1 Information gathering

EY gathered information from a range of reliable and verifiable official data sources to ensure the transparency, robustness, and replicability of the results. EY also collected extensive primary source data from the pathology industry detailing:

- ▶ for the first time, the coning that takes place, and
- ▶ the cost breakdown of providing pathology services in Australia.

Benchmark for expenditure

The main data source for public funded pathology tests is the Medicare Item Reports, administered by the Department of Human Services. This data tracks government outlays for each and every test funded by Medicare using a Medicare Benefits Schedule (MBS) item number subject to coning rules.

To ensure the most robust analysis possible, EY has collected the entire set of MBS Item Numbers individually, of those relevant to Pathology dating back to the Medicare database inception, 1993-94. As there are a large number of item numbers that changed over time, the scope of the analysis period focuses on the period 1999-2000 to 2014-15.

Labour costs

Public data is used where possible. The main source of the growth in the different occupations involved in pathology is the ABS Employee Earnings and Hours publication, 6306.0. This series collects a set of wages for occupations and industries across Australia every 2 years. The latest is 2014, dating back to 2000. The most detailed data level of data available is 3 Digit ANZSCO, 2006-2014 and 3 digit ASCO from 2000-2006. This is supplemented with the ATO, Taxation Statistics Publication, to establish the wages that are more specific to the type of occupations in pathology.

The occupation mix within the Pathology industry is taken from surveys of industry undertaken by Urbis¹⁰ for the Department of Health and Ageing and supplemented by EY industry consultation.

Capital costs

The share of costs in the industry that relates to capital items is collected from industry. We have also used the results from published surveys of the industry¹¹ rents. To supplement this, the Westpac, Indexed real retail rents series dating back to 1989 has been used for the long run broader retail rents.

¹⁰ Urbis, "SURVEY OF THE PATHOLOGY WORKFORCE", Prepared for the Department of Health and Ageing May 2011

¹¹ KPMG, Analysis of rents for co-located collection centres, 2013

General Economic Sources

The ABS is the primary source for all of the general economic statistics such as population history, average weekly wages and for specific occupations. The ABS components of the CPI have been used for other growth in 'other expenditure'.

The model inputs consisted of assumptions, parameters and data. It was important that each of these was evidenced-based and transparent to ensure the reliability of the results. That is, from the very start, the approach was designed as a 'glass-box' and not a 'black-box'. This provided a robust, transparent modelling framework based on industry-specific data, official data sources and accepted methodologies.

2.1.2 Model construction and development

The model is structured to step a user through the process to arrive at the total Medicare expenditure by age, gender and MBS Item number.

For the cost of pathology services, using the MBS Database as a base for history, the components of growth are separated into two broad categories, volume and price. Volume is separated into population growth, ageing and utilisation.

*Total Cost = MBS Service Items by age and gender * Cost per MBS item number*

*Total Cost = Total Cost (t-1) * (1 + Population growth) * (1 + Ageing) *
(1 + Age based utilisation) * (1 + Change in MBS fee)*

By holding everything constant, then gradually relaxing each constraint one by one, we can calculate the effective rate of growth of that component. Using this method we can generate an estimate of the size of each component of total cost growth.

2.2 Productivity estimate

In this section we detail the method of measuring productivity by measuring the costs that are implied without any productivity gains. We do this by holding the amount of capital, labour and other costs constant per unit of output.

We index the cost of each of these components in the industry over time. The final result is the total cost for all the tests performed in each year in absence of productivity. We then compare this to the actual costs to Government via the MBS payments. The gap between these two numbers is the productivity achieved in the industry through more productive workers and better utilisation of capital (multi-factor productivity).

There is additional productivity realised through the growth in coned services. These are for the first time in Australia, independently identified and quantified. Coning existed at the start of the examination period and so for the productivity estimate, only the additional portion is included.

Labour Price Index

The largest share of expenditure in pathology tests is labour. To examine the use of labour in pathology, we first examine the share of full time equivalent staff by occupation.

The pathology industry is comprised of a broad range of occupations but at its core are scientists. The Urbis survey of providers that includes the public sector shows there is a much larger proportion of scientists and laboratory technicians/assistants. This likely reflects the majority of work done by public provided pathology is 'in-lab', whereas private providers must maintain an entire network of collection centres.

This is an important point which highlights that even for a test performed by a machine (overseen by a scientist in a laboratory) there is still a large staffing requirement and related labour cost.

3. Productivity

In Australia, private pathology is a complete service, from collection, to transport, to laboratory testing and to delivering the results. Each of these processes requires people. There are regulations in the pathology industry, as with other parts of the health care sector which ensure it remains a labour intensive service. This section examines the extent of productivity gains achieved in the industry.

3.1 Cost Structure

Industry participants provided their cost structure broken into capital (rent and equipment), labour and other, dating back to the financial year 1999/2000. These were collated and rounded to protect the commercial information of the providers.

Cost Component	% of Cost 1999-00
Labour	55%
Capital	10%
Other	35%
Total	100%

3.2 Cost Indices

The cost of labour, the largest expenditure component, was then indexed using a Pathology specific labour price index. This was developed using the breakdown of labour within the private pathology industry. The breakdown of staff, and the ABS 3 digit code they are drawn from, is presented in Table 4. Values have been rounded to the nearest 5% to protect commercial information. Using this labour breakdown as a base for the index across time, the wage for each occupation is then added. Here we use robust public information from the ABS. The Employee, Earnings and Hours publication tracks wages of different occupations every 2 years at the 3 digit level back to 2000.¹² This does not provide the actual salary of a Pathologist or a Scientist or a Lab Assistant but it does provide an estimate of the broader category. Pathologists for example are drawn from ANZSCO code 253, Medical Practitioners.

Cost Component	% of labour	ANZSCO 3 digit code	ASCO 3 digit code
Pathologists	5%	253	231
Senior Scientists ¹³	5%	234	211
Scientists	35%	234	211
Lab Technicians	10%	311	311
Lab Assistants	5%	599	599

¹² The ABS changed occupation classification in 2006 from the prior ASCO definition to the revised ANZSCO definition.

¹³ Senior scientists were collected as part of the Urbis survey and that has been used to apportion industry data.

Table 4 – Labour breakdown of Pathology Industry, Urbis & Industry

	% of labour	ANZSCO	ASCO
Cost Component		3 digit code	3 digit code
Clerical-Information Managers	5%	224	399
Collectors (Phlebotomist)	25%	311	311
Couriers/Anatomical Pathology typist	5%	732/599	731/599
Other	5%	599	599
Total	100%		

Similarly, the cost of capital was specific to pathology. It has two components:

- i. the investment, depreciation and amortisation of plant and equipment; and
- ii. the rent of buildings and collection centres¹⁴. This index utilised a published paper by KPMG¹⁵ in 2013 on the rents for collection centres as well as the returns to retail property by sub-class paper by Westpac¹⁶, dating back to the 1980s.

The Pathology industry participants also provided their capital investment from 1999-2000 to 2014-15 and depreciation. This was incorporated into the index but is not presented here due to the data being determined to be commercial-in-confidence.

The 'other' component of cost is indexed by CPI. This represents a broad range of input items such as consumables, energy, utilities, contract services, etc.

3.3 Productivity estimate

Here we combine the shares of the industry with the price indices to get an index cost of each service. Applying the unit cost index to the MBS items demonstrates what the cost of MBS Pathology items would have been in the absence of any productivity, as shown in Figure 8. In addition, we separately add back in all the services that have been provided without payment to providers, for each and every MBS item number to capture the impact of the Grand Cone.

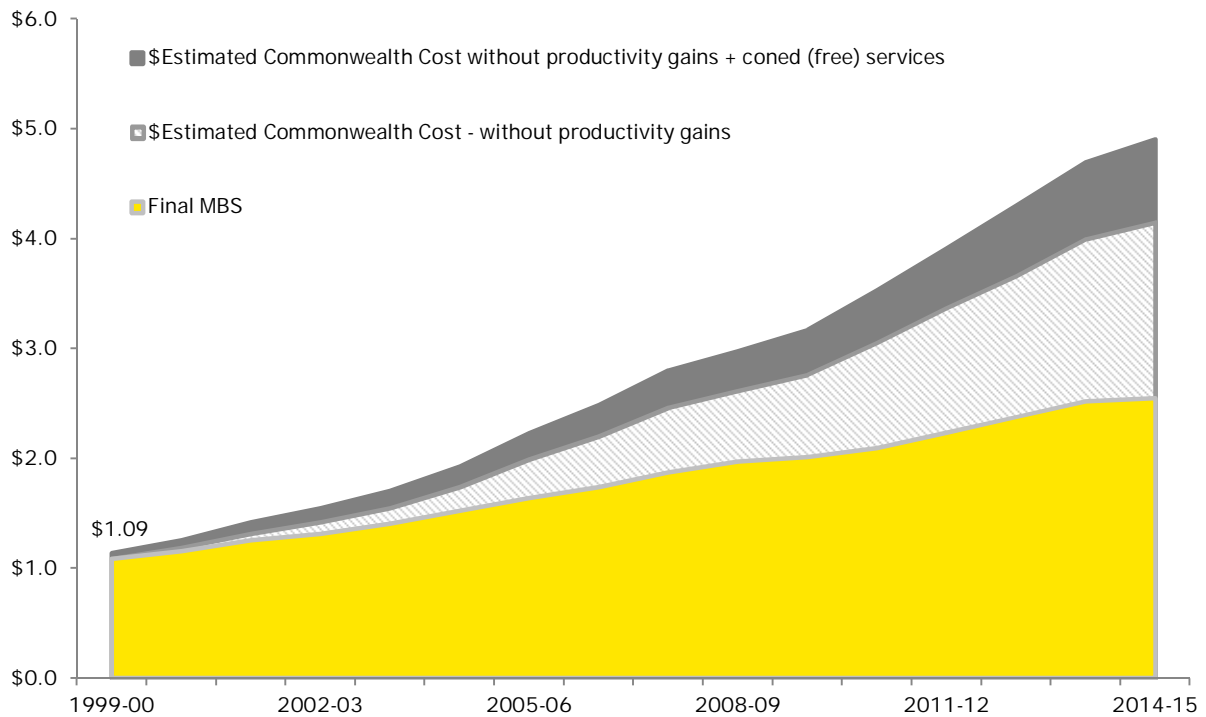
¹⁴ *In economics, Imputed rent is considered a capital item in the production process.*

¹⁵ *'Analysis of rents for co-located collection centres', KPMG, September 2013*

¹⁶ *'Retail property as an investment: return to the 1990's or the 2000's?', Westpac, June 2009*

Figure 8 – Government funded Pathology Expenditure and productivity dividends 1999-00 to 2014-15

\$bn, MBS Pathology items



This demonstrates the cost to Government in 2014-15 would have been \$4.9 billion dollars without the Pathology industry delivering productivity gains and unpaid services through coning. The saving to Government is approximately \$2.4 billion dollars per annum: \$2.0bn from productivity improvements; and \$0.4bn in free tests provided by the pathology industry as a consequence of the coning.

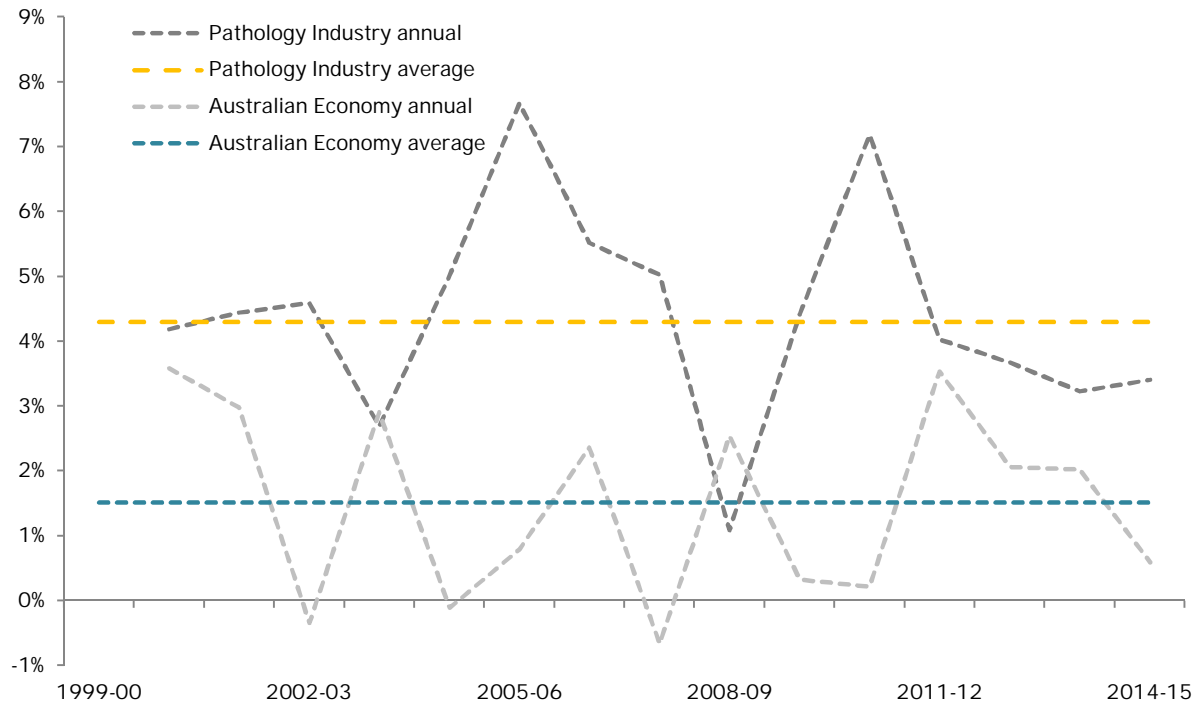
- ▶ Tests provided free of charge by the pathology industry have steadily increased from \$50m in 1999-00 to over \$450m in 2014-15, or from 5% to 17% of total pathology tests.

Productivity is calculated as the compounded growth difference between the cost of services delivered to Government in 1999-2000 to 2014-15. An allowance is made for the unpaid services that were already being delivered in 1999-2000. Therefore, only the growth in these unpaid services is included in the productivity estimate.

The analysis shows that approximately 88% in aggregate over the 15 years or 4.3% per annum productivity benefit has been delivered to taxpayers by the Pathology industry. This compares to the average productivity gain in the Australian economy of 1.5%, shown in Figure 9.

Figure 9 – Productivity in Pathology and the Australian Economy, 1999-2000 to 2014-15

%Annual change



This rate of productivity improvement has been extraordinary relative to other Australian industries. This strong productivity dividend is one of the key reasons why the pathology industry in Australia has been able to provide increasing levels of services in the face of stagnate or falling service fees, while at the same time covering continuing increases in operating expenses. Another consequence of this situation has been the impact on profitability of the industry; this is discussed in the next section.

4. Profits in the industry

Pathology testing differs from many other health and medical services in that it is a wholly referred service. It is a service which underpins evidence-based medicine. Pathology provides a central pillar in the Australian health care system, playing a vital role in illness prevention and chronic disease management. Pathology testing requested by GPs and specialists is the mainstay of preventive health and the early detection of disease in the Australian health system.

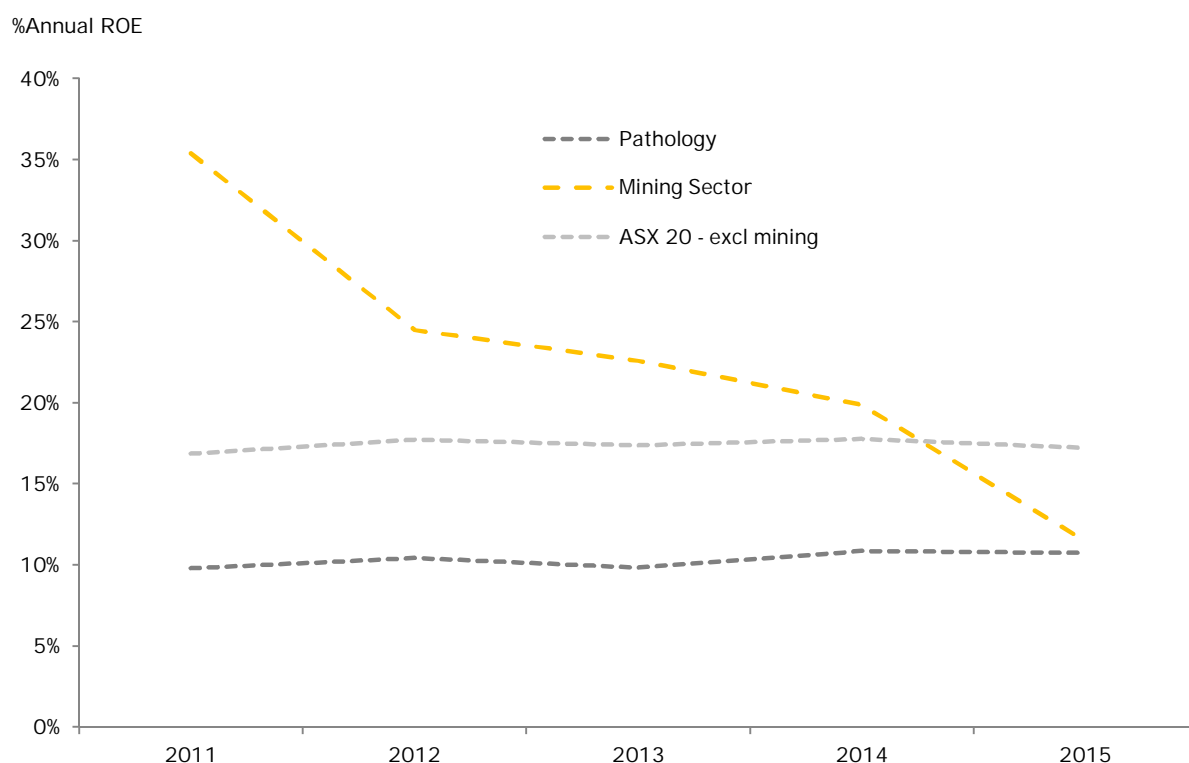
Importantly, pathology in Australia is largely provided by private industry. The Government recognises that contestable, private provision offers many benefits in terms of effectiveness and efficiencies over and above public provision. Government can't operate in the absence of industry and industry can't operate in the absence of Government. There is a symbiotic relationship that is re-evaluated regularly through time to ensure that a) returns to capital can be met by industry owners and b) that government receives a cost effective service while ensuring the delivery of quality outcomes. This goes to the heart of the relationship between government, industry and health policy and is a key concept that is often missed in reports.

The important concept here is "through time", a snap shot of the industry is not appropriate. There are lumpy capital investments that must be made and ongoing running costs – both salary and non-salary market pressures are part of operating in an economy and competing for resources. It is appropriate that there are regular reviews to balance cost pressures against profits. This is similar to other regulated industries, where the interests of private industry are balanced against a need to innovate and invest. It is only through this investment that we can improve productivity (see Figure 9) to ensure the industry remains viable in a fee constrained environment. This is a constant process that is played out by both parties. Private providers of pathology services need enough incentive to remain and certainty to invest and government needs to carefully manage tax payer funds and deliver quality outcomes. An adjustment process is expected through time that takes into account such things as: rising costs, improving productivity, fee settings, economic conditions, patient and doctor behaviour, technology change and advancements in testing, and population ageing and demographics. This combination of incentives and regulation between government and industry plays out across many vital sectors in the economy.

As the pathology industry is one of the largest providers of medical services to the Australian Government (via the MBS), it is right that the profits of the industry come under regular scrutiny. Here we present the return on shareholder equity (profits) of two of the industry providers entire company returns and compare it to the broader ASX. Profits made in a regulated, Government funded industry are often referred to as 'rents'. This term comes from a company extracting a higher than normal return for exclusive market access through a license or some other regulation. Pathology is Government funded but participants do not receive a regulated return. This makes it distinct from public private partnerships or listed utilities which do receive a regulated return on capital invested for things such as toll roads or the national electricity network assets.

The Pathology industry is concentrated in 3 large providers. Two of those providers are listed on the stock exchange. This allows us to scrutinise their returns. Both companies offer more services than just pathology in Australia so caution is required before drawing too many conclusions.

Figure 10 – Market Return on Equity, 2011-2015, ASX and Pathology industry¹⁷



The results in Figure 10 highlight the large impact of the mining sector on the listed equities. We have chosen to exclude mining from the broader ASX 20 for comparison purposes. This shows that the companies operating in the pathology industry experienced consistently lower returns than the broader market excluding mining. The returns to equity of individual companies will reflect a range of market forces. Ultimately companies need to obtain a return adequate enough to attract new capital for investment or risk failure.

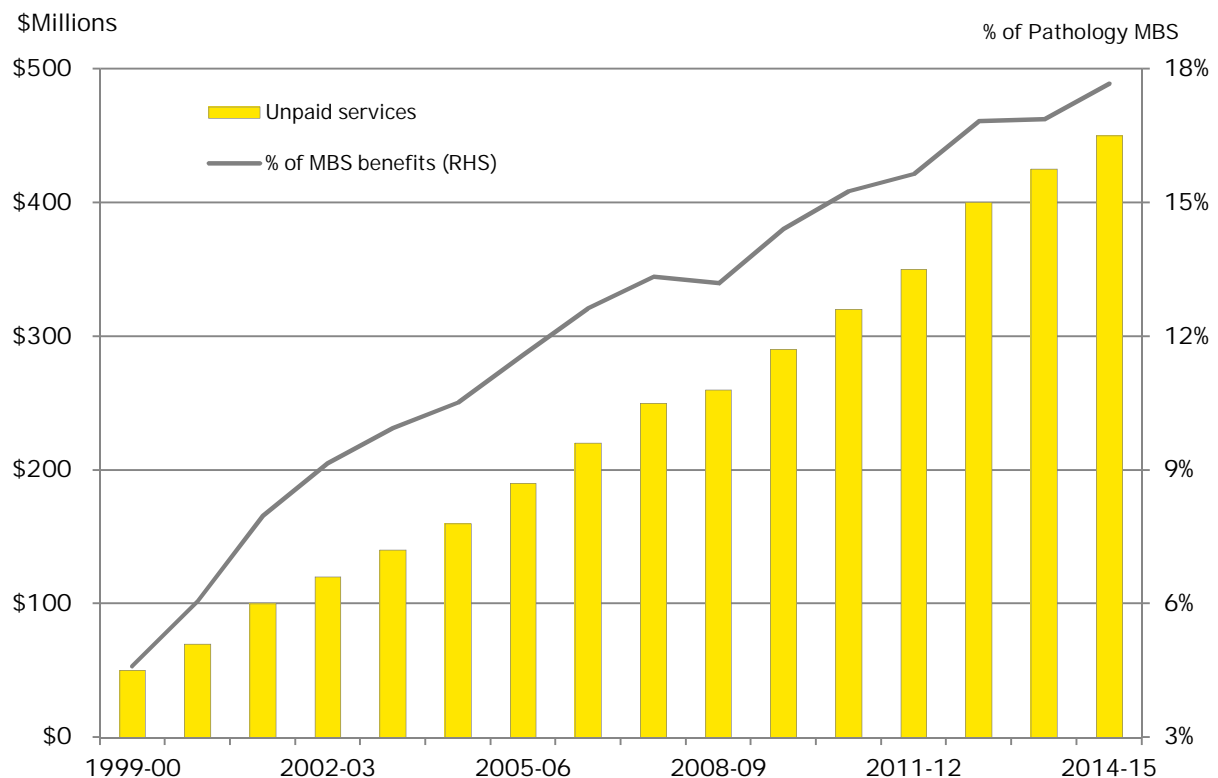
¹⁷ ASX Return on Equity calculations collated from MorningStar data service.

5. Provision of unpaid tests

The unique coning arrangements in the Australian Pathology industry require a number of tests to be performed for no payment. The precise arrangements of coning are described in Section 1.3. This section looks at the implications of the Grand Cone arrangement and the change over time.

Pathology represents good value for a reliable service which can detect and diagnose a medical condition for as little as \$15 per MBS item. It is central to the clinical process of General Practitioners and Specialist Physicians. As the population ages and co-morbidity increases, the number of MBS pathology items and their tests is increasing. This is borne out by the increase in the value of services which are provided without payment under the coning arrangements – see Figure 11.

Figure 11 – Unpaid tests performed by the Pathology Industry 1999-2000 to 2014-15¹⁸



This is a direct cost to the pathology industry, which is consistently growing as a proportion of all tests and which must be covered through the fees paid on other MBS items provided in the system. Essentially, the cost of these free tests must be spread across the rest of the fees paid for pathology services at the individual company level. When examining the fee for any particular test, these unpaid tests must be taken into account. This sort of cross-subsidy arrangement which takes place internally is frequent throughout the Australian healthcare sector. It allows industry to optimise its business operations to ensure viability.

There is a risk that in the absence of being able to internally cross subsidise MBS items at the firm level that the private sector may become increasingly selective in testing, with the public sector

¹⁸ The precise figures from industry are adjusted here by a random number between 0.8 and 1 to ensure commercial-in-confidence information is not inadvertently released.

forced to take on more costly MBS pathology items to ensure that the private sector can achieve an adequate return on capital.

6. International comparison of fees

How do pathology fees in Australia compare with comparable overseas countries? In this section we attempt to build upon the recent work from the Grattan Institute on a comparison of international fees.

Work by Grattan,¹⁹ indicates a potential fee disparity between what comparable tests in comparable nations are paying. In this report we attempt to build upon that work by looking more closely at the fee received by private providers for tests done after the effect of the Grand Cone is removed. Coning is a cost saving initiative unique to Australia which must be considered carefully before comparing fees with other countries, see Section 1.3.

In 2015, there were 20.8 million services that were paid for against the five MBS items listed below. Industry data confirms an approximate²⁰ 11 million tests were performed without payment for those same five MBS items²¹. This implies an approximate average coning rate of 35% for those items.

To examine these proposed fees on a fair and equitable basis we need to incorporate these tests performed for free. To do this, we calculate the number of services performed for each MBS item by incorporating the rate of coning for each item to establish all the tests performed, including the free tests which are not captured by Medicare. Then we multiply the fees presented by Grattan for each jurisdiction by the complete number of services performed rather than the ones that are ultimately paid for by the Government.

	US Medicare (highest)	US Medicare (lowest)	Australia MBS benefit listed	Australia MBS benefit actual after including coning*	NZ Rotorua	NZ Waikato	Ontario	British Columbia
CBC	\$18.23	\$15.21	\$14.45	\$7.95	\$20.73	\$9.88	\$9.86	\$13.07
INR	\$9.30	\$8.17	\$11.65	\$11.07	\$15.54	\$10.47	\$7.40	\$14.39
TSH	\$39.74	\$29.34	\$21.30	\$18.11	\$10.36	\$7.55	\$17.26	\$11.80
HbA1c	\$22.96	\$19.54	\$14.30	\$7.15	\$20.73	\$12.78	\$13.56	\$15.13
Ferritin	\$32.24	\$27.28	\$15.30	\$9.18	\$15.54	\$7.55	\$17.26	\$12.07

*EY calculations from primary source industry data

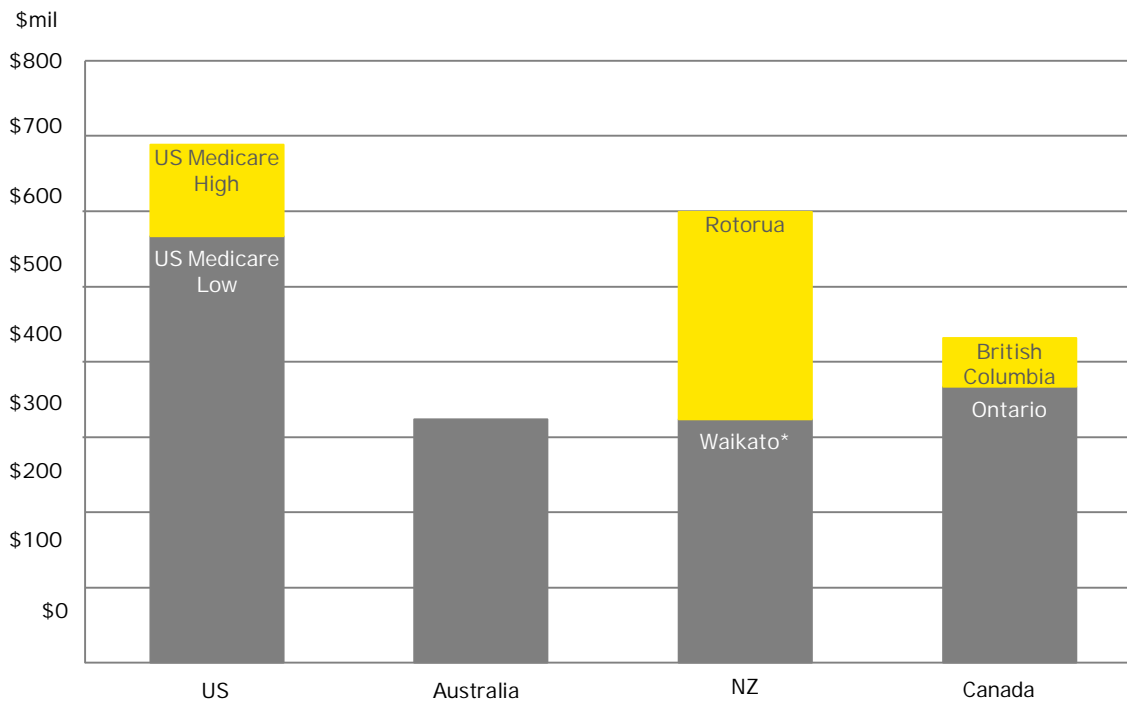
Using the fees presented in the Grattan Report with coning applied implies a savings for Australia ranging between \$45 million over the closest comparable district, Ontario, Canada and \$381 million for the High fees in US Medicare for these 5 tests alone – see Figure 12.

¹⁹ 'Blood money: paying for pathology services', Grattan Institute, February 2016

²⁰ This is less than the actual number of tests performed without payment. The number has been adjusted by a random number between 0.8 and 1 to protect commercially sensitive information.

²¹ There are a number of adjustments done to equate overseas tests to Australian dollars such as the real currency exchange using OECD Purchasing Power Parity terms to allow for differences in labour rates. EY takes all of these adjustments done by Grattan as given and makes no assertions of their appropriateness.

Figure 12 - International fee comparison, 2015



*While comparisons with the Waikato District Health Board (“WDHB”) have been presented for consistency, it is not directly comparable with Australia’s fees paid for the five MBS items. Stakeholder consultation with the WDHB, confirmed that their prices represent an “in house schedule for billing and the prices listed on [their] website are extracted from these”. EY have concluded that they are not directly comparable with Australia’s fees as they do not represent a ‘market price’ and cannot be purchased by the general public. They are likely to exclude all the allowances for capital and resourcing that a stand-alone private or Government funded entity would be required to include.

7. Conclusions

The fee structure in Australian Pathology is complex. The Australian Government has received significant cost savings delivered by the Pathology industry through productivity gains and the Grand Cone of 93% over the 15 years. Coning is now responsible for 17% of total MBS pathology expenditure and is a direct cost transfer from Government to industry.

Free tests provided as part of the coning arrangements have been steadily growing as a proportion of total pathology services. This is adversely impacting on industry viability. This coning system must also be taken into account when making comparisons between fees in Australia and other jurisdictions.

In terms of profitability, the capital returns by publicly listed companies that are pathology providers are around 1/3 below that of the average equity returns of the top 20 companies listed on the Australian Securities Exchange.

The Pathology industry is required to make investments in capital to improve productivity and additional investments to achieve further productivity may be placed at risk if incentives are not properly managed.

Australia has accessible, freely available, high quality, low cost to Government, and efficient pathology services achieved through what was long running co-operative arrangements between the Australian Government and the private pathology sector.

The latest MoU, negotiated in July 2011 was due to expire on 30 June 2016. The agreement became moribund after the Government cancelled it with the budget in May 2014. The Australian Government must work collaboratively and co-operatively with the sector in order to underpin and improve upon Australia's high quality pathology service.

8. Assumptions and Data Sources

8.1 Data Sources

Table 1 provides a list of the main data sources used to inform the modelling and simulations.

Table 1: Data Sources	
Input	Source
Medicare Benefits Schedule	Medicare Benefits Schedule Book, Category 6, Department of Health, April 2016
Number of Collection Centres	Approved Collection Centres for Pathology Services, Medicare Australia
MBS Services performed	Medicare Statistics, Department of Human Services
MBS benefits paid	Medicare Statistics, Department of Human Services
Unpaid services	Industry providers (Australian Clinical Laboratories, Sonic Healthcare, Primary Health Care)
APCC Rent 2010-2013	Analysis of rents for co-located collection centres , KPMG, 2013
Retail rents 1989-2009	Retail property as an investment, Westpac, June 2009
Pathology labour force	SURVEY OF THE PATHOLOGY WORKFORCE, Urbis, May 2011 Industry data
Capital investment/growth	Industry providers (Australian Clinical Laboratories, Sonic Healthcare, Primary Health Care)
Population, age and sex	ABS 3201.0, Estimated Resident Population 2015
Return on Equity	Morningstar
Productivity Australia	ABS, National Accounts 5206, GDP per Hour Worked

8.2 Assumptions

Table 2 provides a list of assumptions used to inform the modelling and simulations.

Table 2: Assumptions	
Item	Assumption
Rents pre-2010	Before de-regulation, Approved Pathology Collection Centre rents are assumed to follow retail sub-regional index
Unpaid Services	Smaller industry participants are assumed to perform a similar proportion of unpaid fees as the larger industry players.
International fees	Tests performed, and fees presented across international jurisdictions are assumed to be comparable and correct as presented by the Grattan Institute.

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