



Community pharmaceuticals

Expenditure trends

NZIER report to Medicines New Zealand

September 2017

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Executive summary

This report identifies a \$682 million investment gap in medicines that are government-funded and made available through the public health system in New Zealand. This gap in medicines funding appears to have been growing year-on-year since 2007 in real terms, i.e. when taking population growth and inflation into account.

This is the amount of additional investment that would be required on top of current budget to have the same level of medicines investment as existed in 2007 in real terms.

The report highlights that the amount of investment in medicines as a percentage of total District Health Board (DHB) funding was estimated to be 8.3% in real terms, but appears to have been falling since 2007. In 2016, the investment level was 4.7% and by 2018, it is estimated that it will have fallen to 4.6% despite the increased funding announcements made in 2016 and 2017.

The report shows that medicines investment may not have kept pace with DHB funding. One solution to the investment gap may be to include a 'corrective real terms adjustment' to maintain stability in pharmaceutical investment relative to other investments.

This report does not factor in other key influencers such as ageing population and the burden of chronic diseases which could further increase the medicines investment required. The report however, suggests that medicines investment may not be keeping up with population growth or inflationary pressures.

Glossary

Combined Pharmaceutical Budget (CPB)

This budget is for subsidies for community medicines and some medical devices (those medicines dispensed by your pharmacist), vaccines, haemophilia treatments, nicotine replacement therapy and cancer medicines which are sometimes given in hospitals. It does not include other hospital medicines and devices, which are funded from DHB hospital budgets.¹

Community Pharmaceutical Expenditure

Expenditure on pharmaceuticals and some medical devices dispensed at community pharmacies. Does not include vaccines, haemophilia treatment, nicotine replacement therapy, pharmaceutical cancer treatments, or medical devices not dispensed at community pharmacies.

Net

For the purposes of this report, "net" means net of rebates where a rebate is the difference between a subsidy paid by PHARMAC and a lower price agreed between PHARMAC and the pharmaceutical supplier. For example, the net CPB is the CPB after rebates are subtracted.

Discretionary Pharmaceutical Fund (DPF)

This fund can be used to provide additional funding to DHBs. The fund was established by the Minister of Health to enable retention of pharmaceutical funding across financial years. This allows PHARMAC to take advantage of investment opportunities that might not otherwise be able to be funded in that year, as well as deal with the sometimes lumpy effects of growth in pharmaceutical usage.

¹ PHARMAC.

Key points

Changes in scope complicate expenditure analysis

Since 2010/11, budget transfers from DHBs and Ministry of Health (MOH) to CPB used for pharmaceutical cancer treatments, vaccines and haemophilia treatments have been included in the CPB and the total amount of these additional investments has grown in value, obscuring the fact that, in nominal terms, the amount of expenditure (net of rebates and movements in the DPF) on community pharmaceuticals has fallen.

In addition to the increase in additional investments since 2010/11, rebates have more than doubled in value over the same period, resulting in a wider gap between gross and net expenditure.

Pharmaceutical expenditure is not keeping pace with inflation and population growth

Based on net values for the CPB and community pharmaceutical expenditure, and after adjusting values for inflation, using the Consumer Price Index (CPI) as well as population growth, real population-adjusted expenditure on community pharmaceuticals has fallen significantly since 2006/07 while the CPB overall has increased.

If only the health component of the CPI is used to adjust for inflation alongside population adjustment, the rate of decrease in pharmaceutical expenditure is greater.

Pharmaceutical expenditure is not keeping pace with other health expenditure

The CPB and community pharmaceutical expenditure were also analysed as a proportion of Vote Health (Budget estimate) and as a proportion of DHB funding (Budget estimate). After adjusting all values for inflation and population growth, both the CPB and community pharmaceutical expenditure have fallen significantly compared with Vote Health and DHB funding.

The 2016 CPB is equal to 4.7% of DHB funding (after adjusting for CPI Health and population), whereas the 2011 and 2007 CPB levels were 5.8% and 8.3% of DHB funding, respectively. To return to the 2011 CPB level from the 2016 CPB level, an additional investment of \$175m would be required and an additional investment of \$601m would be required to return to the 2007 CPB level.

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1. Introduction and context

This report describes the analysis of trends in the CPB and the community pharmaceutical expenditure component of the CPB. This expenditure data was based on publicly available information from Vote Health Budget Estimates, Official Information Act (OIA) responses received by Medicines New Zealand from PHARMAC and press statements from the Minister of Health on PHARMAC budgets (2017 and 2018) but was checked for accuracy against PHARMAC annual reports and, in the case of Vote Health estimates, against estimates published on the NZ Treasury website.

The objective of the analysis was to identify changes in the absolute and relative levels of expenditure on the CPB and community pharmaceuticals net of rebates and movements in the Discretionary Pharmaceutical Fund (DPF), taking into account inflation and population growth, and in comparison with other measures of health expenditure.

The analysis does not assume that there is a 'right' amount to spend on pharmaceuticals, but intends only to provide good information for decision-making.

The analysis also did not include any consideration of: outcomes of pharmaceutical investment; effectiveness of PHARMAC's functions or of funded pharmaceuticals; effects of changes in the price of pharmaceuticals; the level of need for funded pharmaceuticals; or changes in the specific composition of community pharmaceutical expenditure. Interpretation of results may require that these additional issues be considered.

2. Baseline data

The expenditure data used for this report were obtained from a spreadsheet supplied by Medicines New Zealand. The spreadsheet was based on PHARMAC expenditure data extracted from responses to requests for information under OIA about PHARMAC's Combined Pharmaceuticals Budget and expenditure on community pharmaceuticals. The Vote Health figures in the spreadsheet represent the estimated appropriations from the Budget released publicly by Treasury.

As a first step the values obtained from PHARMAC through requests for information under the OIA were checked against PHARMAC's annual reports and against the Treasury's published estimates. This data obtained under OIA, which is attached to the PHARMAC annual reports is publicly available. Checks for internal consistency with regards to gross and net values of the Combined Pharmaceutical Budget and community pharmaceuticals were also performed.

Minor issues were identified in the OIA responses provided to Medicines New Zealand:

- The amount of community pharmaceutical expenditure for 2007/08 in the OIA responses provided was not found in PHARMAC's 2008 Annual Report.
- The "additional rebates" included in the OIA responses provided were not found in PHARMAC's annual reports.

Also, it was noted that the Vote Health figures represented the estimated appropriations (Budget figures), not actual expenditure which is available from the Supplementary Estimates published by the Treasury later in each financial year. This is not expected to have a major impact.

The calculation of net values of CPB and community pharmaceutical expenditure appeared to be accurate and these were used in the analysis for this report.

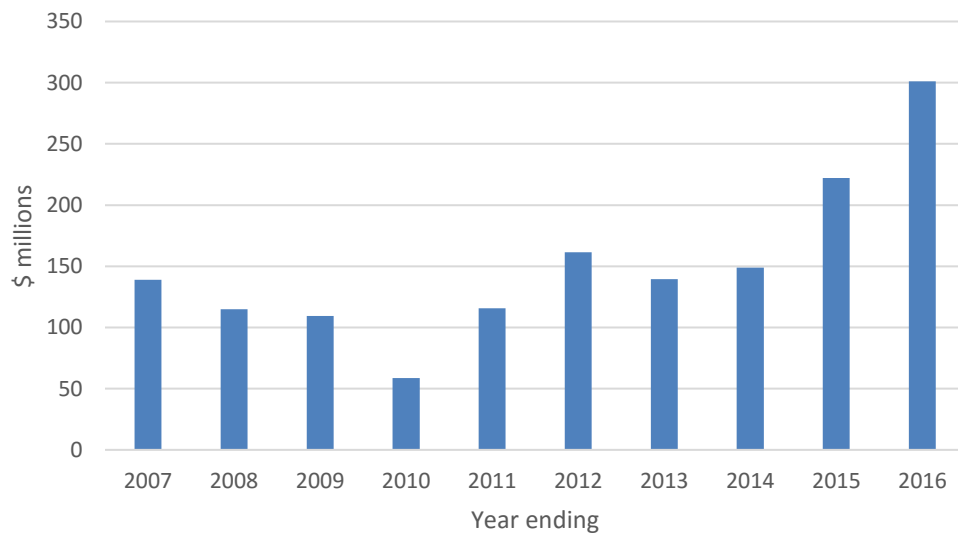
Sources of data can be found in Appendix B.

3. Pharmaceutical rebates

When analysing pharmaceutical expenditure trends, the total amount of rebates is important to consider because rebates represent amounts paid by pharmaceutical companies back to DHBs (via PHARMAC). The higher the total amount of rebates, the greater the difference between gross expenditure and net expenditure, with net expenditure being a truer representation of cost.

Pharmaceutical rebates have experienced significant growth over time, particularly since 2013/14, as shown in Figure 1 below. This sharp rise is due to the inclusion of vaccine rebates, which were not included in previous years.

Figure 1 Value of rebates



Source: NZIER, Data obtained from OIA responses, PHARMAC Annual Reviews and Vote Health Budget Appropriations.²

Because rebates have varied considerably, and grown rapidly since 2014, values of community pharmaceutical expenditure and the CPB analysed for this report are the net values (after subtracting rebates).

² Years ending 2015 and 2016 rebate values are higher due to gross (not net) numbers for rebates provided in the OIA responses.

4. The net CPB and community pharmaceuticals

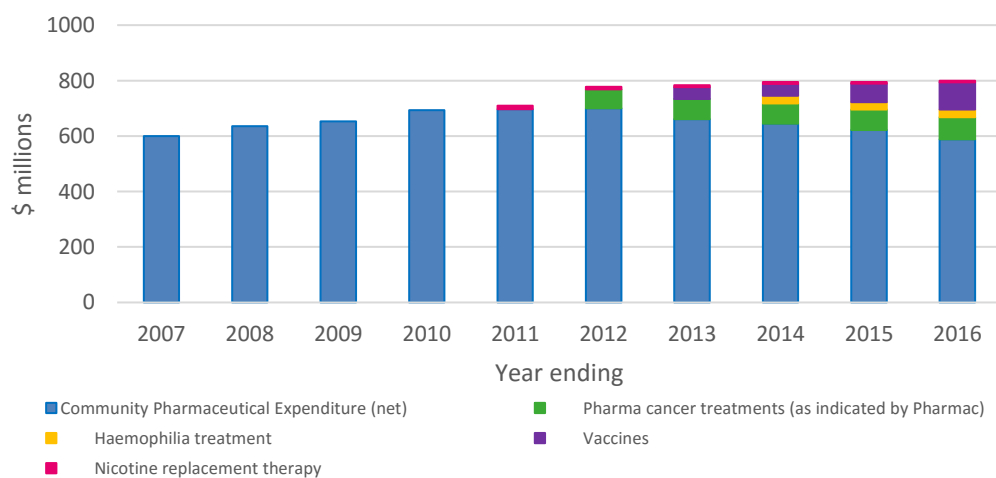
From 2006/07 to 2009/10, the net (after subtracting rebates and movements in the Discretionary Pharmaceutical Fund) Community Pharmaceuticals Budget expanded from \$599 million to \$694 million.

In 2010/11, expenditure on nicotine replacement therapy was added to expenditure on community pharmaceuticals and was subsequently reported as a Combined Pharmaceutical Budget (CPB). Expenditure on nicotine replacement therapy has tended to decrease over time from its initial funding of nearly \$13 million in 2010/11 to just under \$6 million in 2015/16.

In 2011/12, pharmaceutical cancer treatments were transferred from DHBs to the CPB. Unlike, nicotine replacement therapy, pharmaceutical cancer treatment expenditure has expanded from \$68.5 million to over \$80 million in 2015/16. In 2012/13, vaccines were transferred from MOH to the CPB, increasing from just over \$43 million in the first year to \$98 million in 2015/16. Finally, in 2013/14, haemophilia treatments were transferred from DHBs / hospitals to the CPB, remaining fairly constant at \$27 to \$28 million per year from 2013/14 to 2015/16.

Figure 2 below shows the ongoing funding of community pharmaceuticals and additions to the CPB, with the total value of these additional investments growing from \$12.92 million in 2010/11 to \$211.8 million in 2015/16. The growing importance of these additional investments has contributed to the overall growth of the CPB, observed as continued annual increases despite community pharmaceuticals experiencing relatively slow growth in nominal terms since 2011/12.

Figure 2 Breakdown of the net CPB (unadjusted)



Source: NZIER, Data obtained from OIA responses, PHARMAC Annual Reviews and Vote Health Budget Appropriations³.

³ Years ending 2015 and 2016 vaccine rebate values are higher due to gross (not net) numbers for vaccine rebates being provided in the OIA responses.

5. Expenditure adjusted for population growth and inflation

The results presented so far are based on nominal values unadjusted for population growth. But over the nine years of this dataset, the effects of inflation and population growth will have meant that, *ceteris paribus*, the same level of funding would not deliver the same value of pharmaceutical investments.

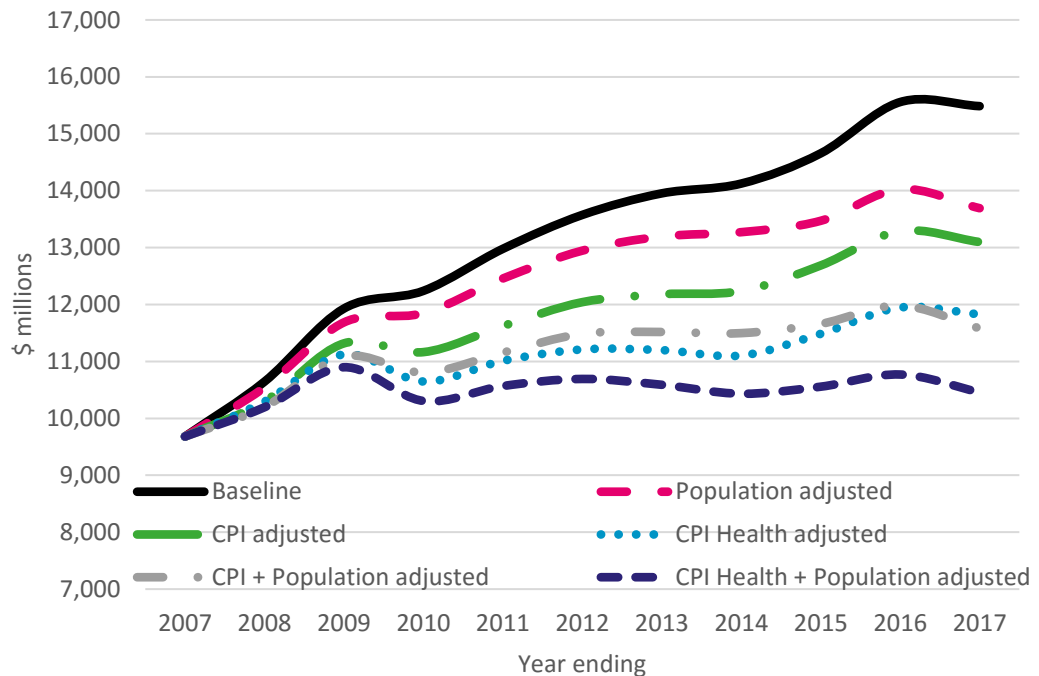
To get a more meaningful indication of the growth of Vote Health, the CPB and community pharmaceutical expenditure, the amount of expenditure on each was adjusted for:

- Inflation – using the Consumer Price Index (CPI) or the health component of the CPI (CPI-Health), the latter reflecting a greater rate of inflation, and
- Population growth – using Statistics New Zealand population estimates.

Adjusting for inflation and population growth result in a more modest pattern of growth in Vote Health budgets, with price-related adjustments having a greater effect than adjustment for population growth, and the health component of the CPI having the greatest effect of the two inflation adjustments.

Figure 3 on the next page shows the effects of these adjustments, using the Vote Health Budget estimate for illustration purposes. Adjusting for population growth alone has the least effect. Adjusting for inflation using the health component of the CPI (CPI Health) has a greater effect than using all components of the CPI. Unsurprisingly, the combined effects of population growth and health-related inflation cause the greatest erosion of values, resulting in Vote Health having an almost flat profile over time. Because no adjusted 2016/17 value of Vote Health has decreased relative to 2006/07, one would expect, *ceteris paribus*, that the Vote Health would deliver at least as much value in 2015/16 as it did in 2006/07.

Figure 3 Effect on Vote Health (Budget estimate) of adjusting for inflation and population growth⁴



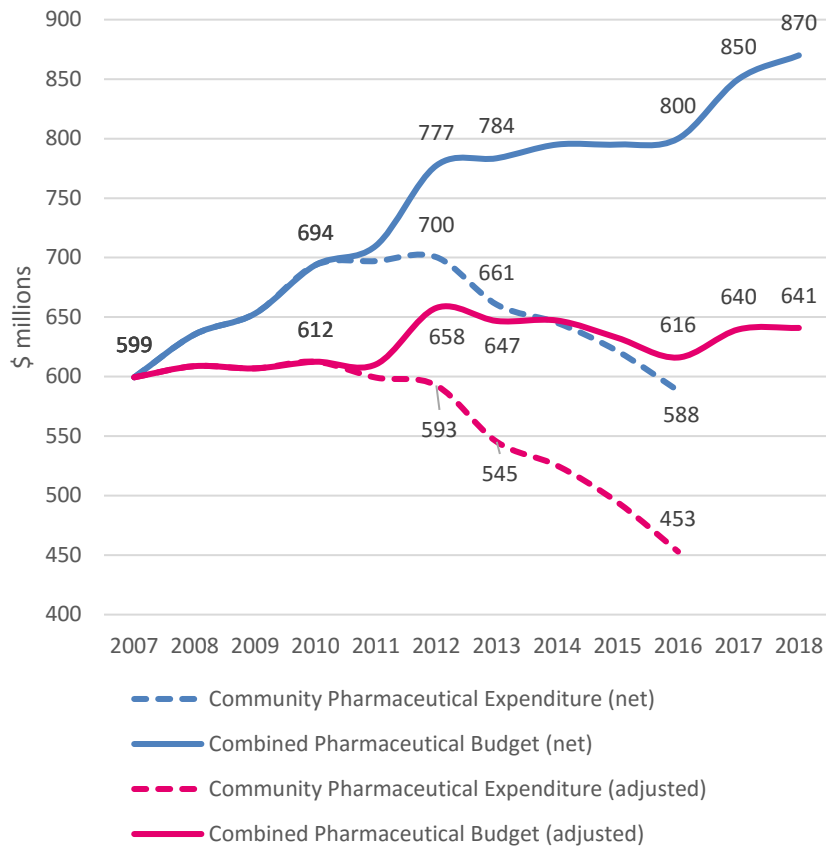
Source: NZIER, Statistics NZ, Data obtained from OIA responses, PHARMAC Annual Reviews and Vote Health Budget Appropriations.

5.1. CPI and population adjusted CPB and community pharmaceuticals

Adjusting for population growth and inflation (using the CPI), as shown in Figure 4 on the next page, reveals that the growth in the net CPB and net community pharmaceutical expenditure has not been as significant as suggested by the unadjusted values of the net CPB. In fact, after adjusting for inflation (using the CPI) and population growth, expenditure on community pharmaceuticals was considerably lower in 2015/16 than in 2006/07, whereas the unadjusted values suggest only a slight decline. The CPB, on the other hand, was slightly higher in 2015/16 than in 2006/07 even after adjusting for inflation and population growth. The CPB rose sharply in unadjusted and adjusted values in 2016/17 and 2017/18. It is not clear to what extent this increase reflects growth in community pharmaceutical expenditure as the CPB breakdown is not available for 2016/17 and 2017/18.

⁴ Differences between the series are small as proportion of the total. The vertical axis has been truncated so that small proportionate differences can be seen more clearly.

Figure 4 Adjusted and unadjusted CPB and community pharmaceutical expenditure (CPI+Pop growth)⁵



Source: NZIER, Statistics NZ, Data obtained from OIA responses, PHARMAC Annual Reviews and Vote Health Budget Appropriations.

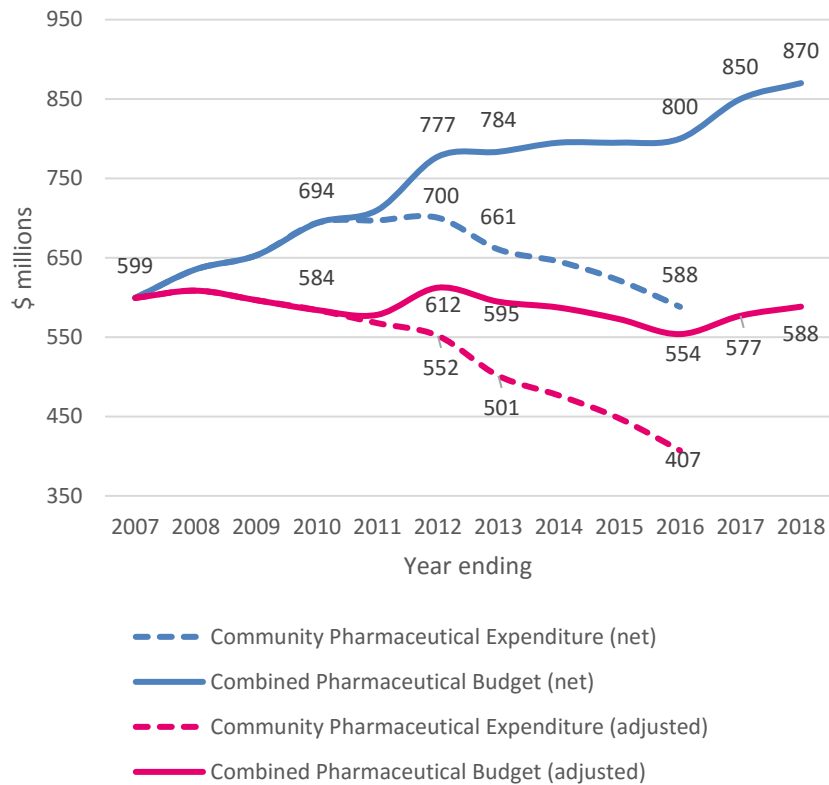
5.2. CPI-Health and population adjusted CPB and community pharmaceuticals

Performing the same adjustment as in the previous section, but using only the Health component of the CPI along with adjustment for population growth, results in slightly different values, as shown in Figure 5 on the next page.

With health-related price inflation having been at a higher level than general inflation, the decrease in the adjusted value of community pharmaceutical expenditure is greater – a reduction of almost a third in real terms- while the growth in the net CPB is also negative. The CPB rose sharply in unadjusted and adjusted values in 2016/17 and 2017/18. It is not clear to what extent this increase reflects growth in community pharmaceutical expenditure as the CPB breakdown is not available for 2016/17 and 2017/18.

⁵ Differences between the series are small as proportion of the total. The vertical axis has been truncated so that small proportionate differences can be seen more clearly.

Figure 5 Adjusted and unadjusted CPB and community pharmaceutical expenditure (CPI-Health+Pop growth)⁶



Source: NZIER, Statistics NZ, Data obtained from OIA responses, PHARMAC Annual Reviews and Vote Health Budget Appropriations.

⁶ Differences between the series are small as proportion of the total. The vertical axis has been truncated so that small proportionate differences can be seen more clearly.

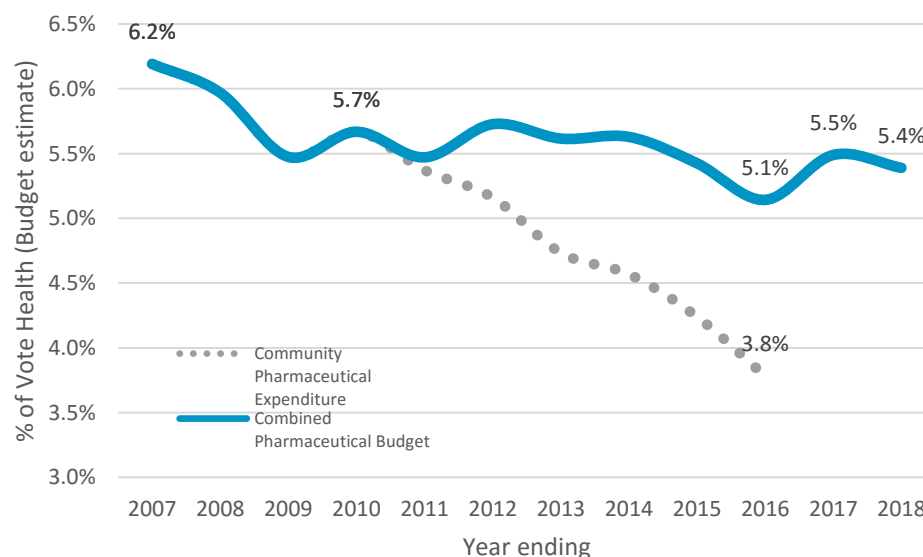
6. Net CPB and community pharmaceutical expenditure relative to Vote Health

PHARMAC’s budget is a component of Vote Health and, at a basic level, might be expected to reflect overall trends in health expenditure.

In absolute terms, Vote Health expenditure (Budget estimates) has experienced annual increases from 2006/07 to 2015/16, from \$10.6 billion to \$15.5 billion.

Figure 6 below, shows that, as a proportion of Vote Health estimated budgets, without adjusting for population or inflation, expenditure on community pharmaceuticals has fallen by 2.4 percentage points from 6.2 percent of Vote Health to 3.8 percent of Vote Health. The addition of nicotine replacement therapy, pharmaceutical cancer treatment, vaccines and haemophilia treatment has reduced the impact on the CPB of continued decreasing expenditure in relative terms on community pharmaceuticals, so that in 2015/16 the CPB was less than one percentage point below the 2006/07 level. The CPB rose sharply as a proportion of Vote Health in 2016/17 before dropping slightly in 2017/18. It is not clear to what extent this reflects growth in community pharmaceutical expenditure as the CPB breakdown is not available for 2016/17 and 2017/18.

Figure 6 Unadjusted net CPB and community pharmaceuticals as a proportion of Vote Health⁷

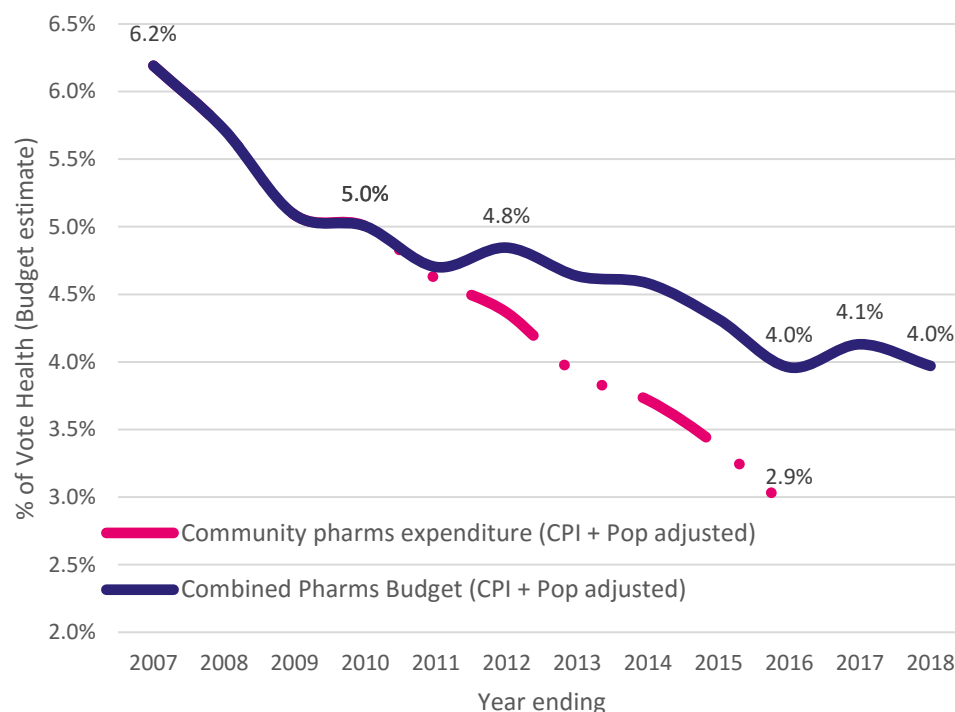


Source: NZIER, Data obtained from OIA responses, PHARMAC Annual Reviews and Vote Health Budget Appropriations.

⁷ Differences between the series are small as proportion of the total. The vertical axis has been truncated so that small proportionate differences can be seen more clearly.

Figure 7 below shows the effect of adjusting for population growth as well as for inflation using the CPI. These adjustments suggest a much more significant drop in the CPB as well as in community pharmaceutical expenditure, which stood at 2.9 percent and 4 percent, respectively, of Vote Health in 2015/16 after adjusting for inflation and population growth -half to two thirds of the 2006/07 level. Adjusting the CPB for inflation and population growth dampens the sharp rise in the unadjusted CPB in 2016/17 (Figure 7) as a proportion of Vote Health. It is not clear to what extent this reflects changes in community pharmaceutical expenditure as the CPB breakdown is not available for 2016/17 and 2017/18.

Figure 7 Adjusted net CPB and adjusted net community pharmaceuticals as a proportion of Vote Health (CPI + pop growth)⁸

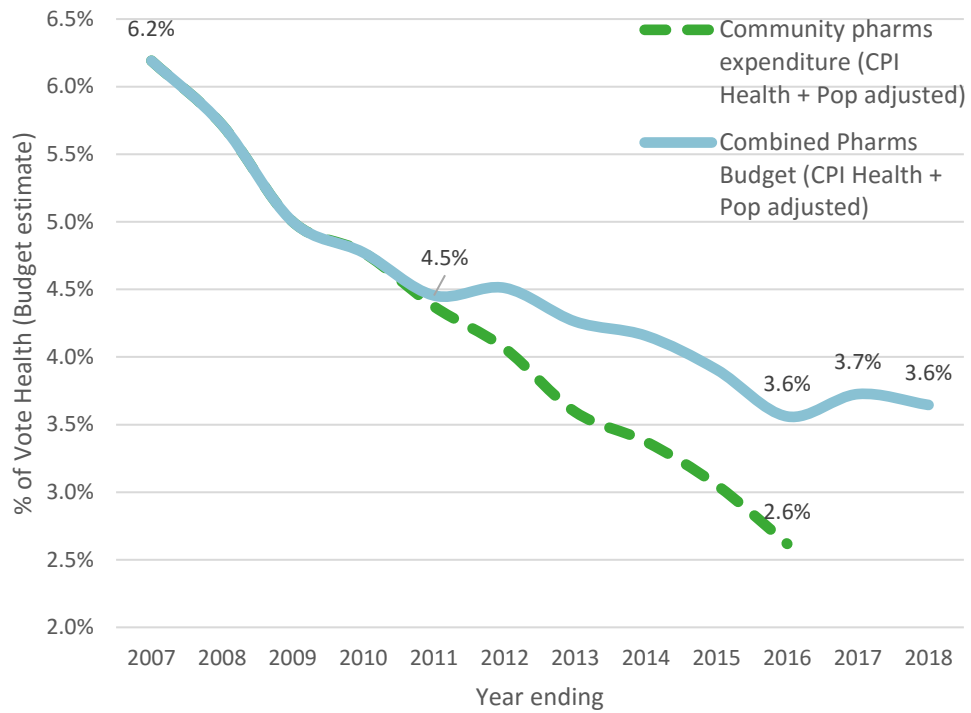


Source: NZIER, Statistics NZ, Data obtained from OIA responses, PHARMAC Annual Reviews and Vote Health Budget Appropriations.

Figure 8 on the next page shows how using the health component of the CPI (CPI Health) affects these figures. The decline in value of both the CPB and community pharmaceutical expenditure is more significant than when all components of the CPI are used to adjust for inflation because health-related inflation has been relatively high. Adjusting the CPB for the health component of inflation and population growth dampens the sharp rise in the unadjusted CPB in 2016/17 (Figure 7) as a proportion of Vote Health. It is not clear to what extent this reflects changes in community pharmaceutical expenditure as the CPB breakdown is not available in 2016/17 and 2017/18.

⁸ Differences between the series are small as proportion of the total. The vertical axis has been truncated so that small proportionate differences can be seen more clearly.

Figure 8 Adjusted net CPB and adjusted net community pharmaceuticals as a proportion of Vote Health (CPI-Health+pop growth)⁹



Source: NZIER, Statistics NZ, Data obtained from OIA responses, PHARMAC Annual Reviews and Vote Health Budget Appropriations.

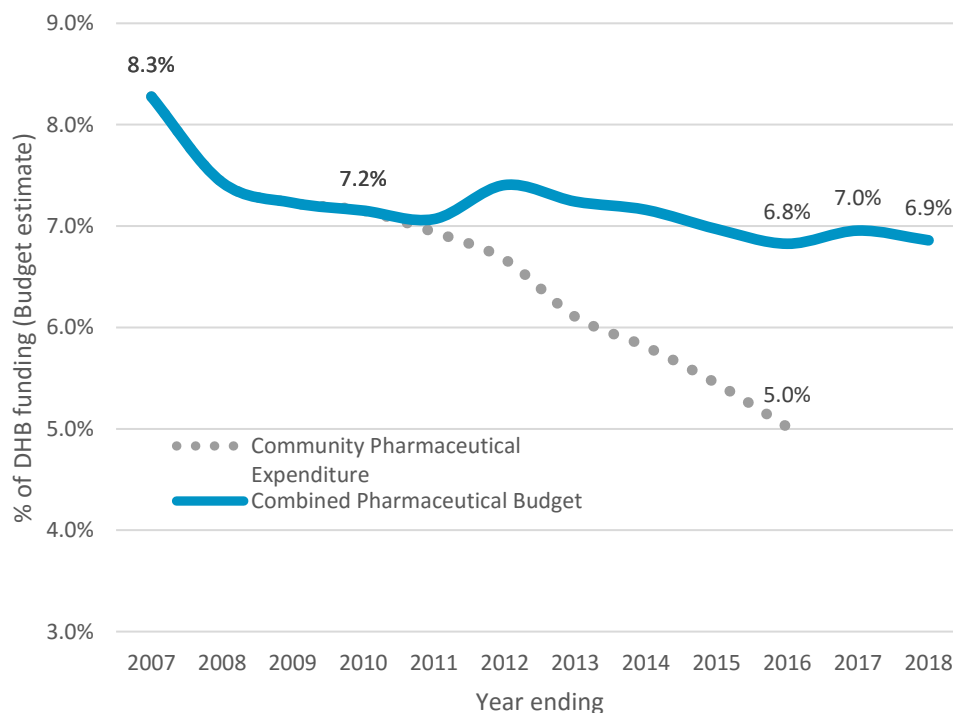
⁹ Differences between the series are small as proportion of the total. The vertical axis has been truncated so that small proportionate differences can be seen more clearly.

7. Net CPB and community pharmaceutical expenditure relative to DHB funding

Vote Health includes a significant amount of funding that is not output-related. As an alternative point of reference, therefore, DHB funding (Budget estimate) was used to highlight trends in the CPB and community pharmaceutical expenditure

Unadjusted DHB funding has varied slightly as a proportion of Vote Health, as shown in Figure 9 below. The unadjusted values of the CPB were slightly higher in 2016/17 and 2017/18 than in 2015/16. It is not clear to what extent this reflects changes in community pharmaceutical expenditure as the CPB breakdown is not available for 2016/17 and 2017/18.¹⁰

Figure 9 Unadjusted net CPB and community pharmaceuticals as a proportion of DHB funding (unadjusted)¹¹



Source: NZIER, Data obtained from OIA responses, PHARMAC Annual Reviews and Vote Health Budget Appropriations.

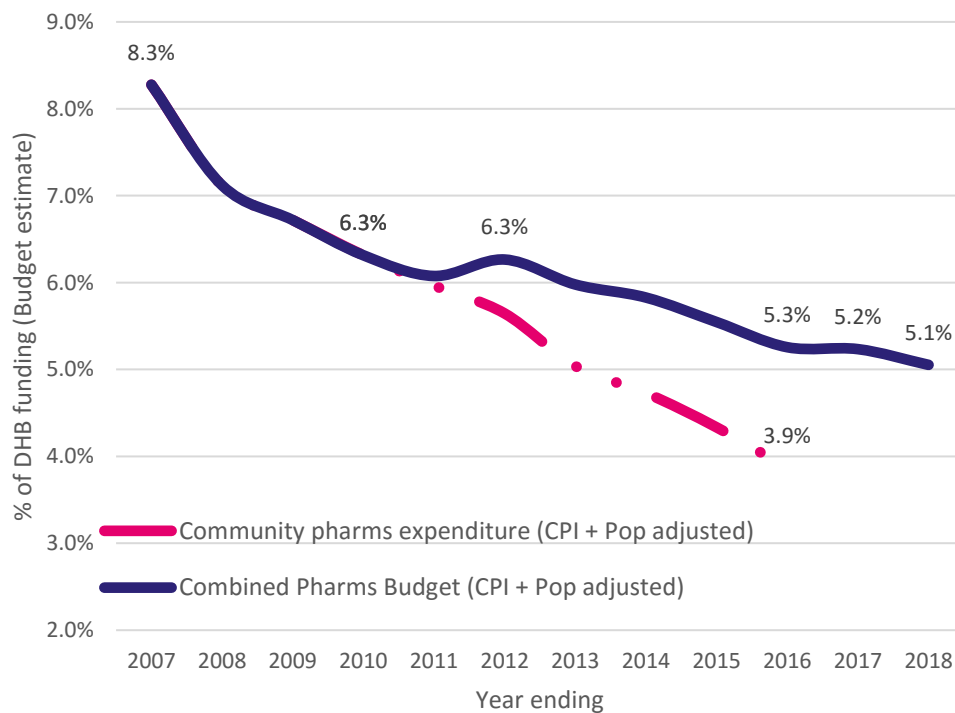
¹⁰ Budget breakdowns for the CPB in 2016/17 and 2017/18 were requested under the OIA, but were not released.

¹¹ Differences between the series are small as proportion of the total. The vertical axis has been truncated so that small proportionate differences can be seen more clearly.

Figure 9 shows unsurprisingly that the CPB and community pharmaceuticals have been a greater proportion of DHB spending than of Vote Health but the proportion has declined from 8.3 percent to 5 percent for community pharmaceuticals and from 8.3 percent to 6.8 percent (2016) for the CPB.

Figures 10 below and 11 on the next page show the effects of adjusting for population growth and inflation using the CPI (Figure 10) or using the health component of the CPI (Figure 11). Using DHB funding as a reference point, community pharmaceuticals decline by more with each of these adjustment combinations between 2006/07 and 2015/16 than when Vote Health is used as the reference point. This suggests that relative to other output-related investments, investments in the CPB and community pharmaceuticals have declined. Adjusting the CPB (as a proportion of DHB funding) for either measure of inflation as well as population growth reverses the slight rise in unadjusted CPB in 2016/17 (Figure 10) as a proportion of DHB funding. It is not clear to what extent this reflects changes in community pharmaceutical expenditure as the CPB breakdown is not available for 2016/17 and 2017/18.

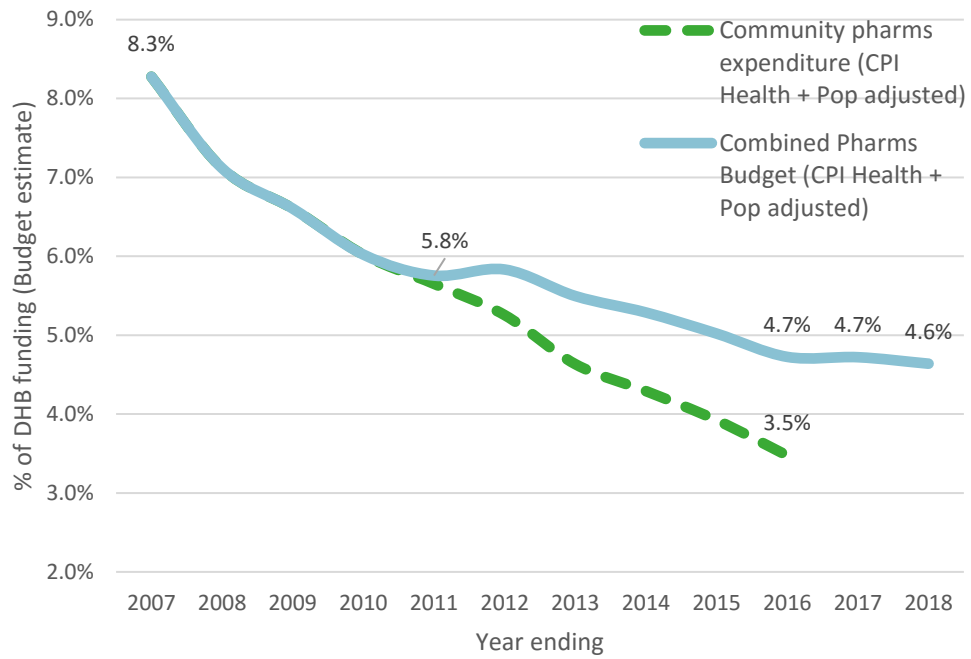
Figure 10 Adjusted net CPB and community pharmaceuticals as a proportion of DHB funding (CPI + pop growth)¹²



Source: NZIER, Statistics NZ, Data obtained from OIA responses, PHARMAC Annual Reviews and Vote Health Budget Appropriations.

¹² Differences between the series are small as proportion of the total. The vertical axis has been truncated so that small proportionate differences can be seen more clearly.

Figure 11 Adjusted net CPB and community pharmaceuticals as a proportion of DHB funding (CPI Health + pop growth)¹³



Source: NZIER, Statistics NZ, Data obtained from OIA responses, PHARMAC Annual Reviews and Vote Health Budget Appropriations.

¹³ Differences between the series are small as proportion of the total. The vertical axis has been truncated so that small proportionate differences can be seen more clearly.

8. Compound annual growth

To compare the growth rates of different series of values that have grown at different rates over time, an overall measure of growth for each series is needed. Compound annual growth rates (CAGRs) are an appropriate measure in this context.

CAGRs are essentially mean annual growth rates over a period of time longer than one year. CAGRs provide a more meaningful picture of growth over a period in a series that has seen volatility from year to year. The CAGR is calculated by spreading the difference between expenditure in the first year of the series and expenditure in the last year of the series, evenly across all years.

CAGRs were calculated for the net CPB (2007-2016), net expenditure on community pharmaceuticals (2007-2016) and budget estimates of Vote Health (2007-2016). These are shown in Table 1 below.

Table 1 Annual compound growth rates with different adjustments for inflation and population growth

	CPB net (2007-2016)	Community pharms (net) (2007-2016)	Vote Health budget (2007-2016)
Unadjusted values	3.3%	-0.2%	5.4%
Population-adjusted	2.1%	-1.4%	4.2%
CPI-adjusted	1.5%	-1.9%	3.6%
CPI-Health-adjusted	0.3%	-3.1%	2.4%
CPI- and population-adjusted	0.3%	-3.1%	2.4%
CPI-Health- and population-adjusted ¹⁴	-0.9%	-4.2%	1.2%

Source: NZIER, Statistics NZ, Data obtained from OIA responses, PHARMAC Annual Reviews and Vote Health Budget Appropriations.

As shown in Table 1, depending on the measure used to adjust for inflation, one or both categories of expenditure (net CPB and net community pharmaceuticals) shows negative annual compound growth, with the combination of adjustment using the health component of the CPI as well as population resulting in negative annual compound growth for both the CPB and community pharmaceuticals. Whereas, under all adjustment methods and unadjusted values, the annual compound growth rate of budget estimates of Vote Health is positive. Under all adjustment approaches, and even unadjusted values, the annual compound growth rate of investment in community pharmaceuticals is negative.

¹⁴ The CAGR of net CPB between 2007 and 2018 is slightly better at -0.2%.

9. Value of “missing” investment

Table 2 below shows:

- The total investment required in 2016, 2017 and 2018 to return to 2011 and 2007 net CPB investment as a percentage of DHB funding (5.8 percent in 2011, 8.3 percent in 2007) – previously shown in Figure 11.
- The value of *additional* investment required over the actual 2016, 2017 and 2018 net CPB values to return to the 2011 and 2007 net CPB investment as a percentage of DHB funding (5.8 percent in 2011, 8.3 percent in 2007) – previously shown in Figure 11.

Table 2 Net CPB investment required to return to 2007 and 2011 level of investment as a percentage of DHB funding

From year	Total investment required		Additional investment required	
	2011	2007	2011	2007
To year				
2016	\$975m	\$1,401m	\$175m	\$601m
2017	\$1,036m	\$1,490m	\$186m	\$640m
2018	\$1,079m	\$1,552m	\$209m	\$682m

Source: NZIER, Statistics NZ, Data obtained from OIA responses, PHARMAC Annual Reviews and Vote Health Budget Appropriations.

As seen in Figure 11, net CPB as a proportion of DHB funding decreased more between 2006/07 and 2010/11 than between 2010/2011 and 2017/18. Consequently, the additional investment required in the three most recent years to return to the 2007 CPB level is more than three times the additional investment required to return to the 2011 CPB level.

Appendix A Methods

Data originally commissioned by Medicines New Zealand

The expenditure data used for this report were obtained from a spreadsheet supplied by Medicines New Zealand. The spreadsheet was based on PHARMAC expenditure data extracted from responses to requests for information under OIA about PHARMAC's Combined Pharmaceuticals Budget and expenditure on community pharmaceuticals. The Vote Health figures in the spreadsheet represent the estimated appropriations from the Budget released publicly by Treasury.

Additional data gathered for analysis

- Population, CPI and CPI Health data obtained from Statistics NZ and NZIER's Quarterly Predictions.
- DHB funding figures obtained from Treasury Vote history.

The data was then transformed to give a meaningful picture

As a first step the values obtained from PHARMAC through requests for information under the OIA were checked against PHARMAC's annual reports and against the Treasury's published estimates. This data obtained under OIA, which is attached to the PHARMAC annual reports is publicly available. Checks for internal consistency with regards to gross and net values of the CPB and community pharmaceuticals were also performed.

Minor issues were identified in the expenditure data provided by Medicines New Zealand:

- The amount of community pharmaceutical expenditure for 2007/08 in the spreadsheet provided was not found in PHARMAC's 2008 Annual Report.
- The "additional rebates" included in the OIA responses provided were not found in PHARMAC's annual reports.
- The spreadsheet included the DPF and figures for a net DPF but the latter were not explained, nor was any explanation found in PHARMAC's annual reports.

The net CPB and net community pharmaceutical expenditure figures were then adjusted for inflation (CPI and the health component of the CPI) and population growth. These adjusted figures were expressed as proportions of Vote Health budget and budgeted DHB funding. These formed the basis of the analysis in this report.

Appendix B Sources of data

Statistics NZ: <http://www.stats.govt.nz/infoshare/>

Treasury Vote history: <http://www.treasury.govt.nz/budget/votehistory/health>

OIA requests:

<http://medicinesnz.co.nz/assets/Documents/2017-18-Service-Budget-Document.pdf>

<http://medicinesnz.co.nz/assets/Documents/2016-17-CPB-funding-docs-previously-released.pdf>

<http://medicinesnz.co.nz/assets/Documents/2017-18-CPB-Funding-Documents-Redacted.pdf>

<http://medicinesnz.co.nz/assets/Documents/2016-17-Budget-Bid-Documents-previously-released-resending-Redacted.pdf>

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