

# Financial barriers to HIV treatment in Victoria: A brief report

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Anna Wilkinson  
Carol El-Hayek  
Yik Siang Cheah  
Jeffrey Grierson  
Graham Brown  
James McMahon  
Alison Duncan  
Mark Stoové  
**January 2014**



**AlfredHealth**



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## **ACKNOWLEDGMENTS**

The authors would like to thank the following for contributing to this report. Participants in the HIV Futures 7 survey for their ongoing support of HIV research. Mr Luke Hannath, Alfred Health, for coordinating data extraction and clarification on data fields. Prof Michael Dooley, Alfred Health, Director of Pharmacy for assistance in accessing data. Mr Andrew Wey, Alfred Health Chief Executive for consultation, support and assistance in accessing data. Mr Ian Muchamore, President of Positive Living Victoria, for contributions to the draft report and for sharing his expertise.

## PREFACE

There has been a steady increase in HIV diagnosis in Australia for over a decade to 1063 newly diagnosed in Australia cases in 2012<sup>1</sup>. In Victoria, there were 260 cases of newly diagnosed HIV in 2012<sup>2</sup> an increase from 234 in 2002<sup>3</sup>. There are an estimated 25,700 people living with diagnosed HIV (PLWH) in Australia at the end of 2012<sup>1</sup>, and 6,400 PLWH in Victoria (Victorian HIV Registry). Significant improvements in quality of life and expectancy for PLWH have occurred since the introduction of combination antiretroviral treatment (ART) in 1996<sup>4</sup>; and there is continuing uptake of ART<sup>5</sup>. There is now an established evidence base that in addition to improving individual health outcomes, reducing a person's viral load through ART reduces transmissibility, thus benefiting the community<sup>6</sup>.

HIV care is provided by specialist General Practitioners (GPs), sexual health centres, public and private hospitals throughout Australia, with services provided often at minimal or no cost. The prescribing of HIV treatment and the supply and dispensing of ART is restricted by legalisation (*National Health Act 1953*); these supply restrictions extend to imposing costs to patients for ART<sup>5</sup>. To prescribe ART as a pharmaceutical benefit item (cost subsidised), medical practitioners must be affiliated with a specialist hospital unit. Dispensing of ART can only be done and claimed for by hospital pharmacies, or an agent for the public hospital<sup>7</sup>. There is also a requirement for individuals to pay a contribution (co-payment) for each ART item dispensed<sup>7</sup>. Currently there is one exception in Victoria with Melbourne Sexual Health Centre (MSHC), a large metropolitan sexual health centre, providing ART and HIV-related medication free of charge, with pharmacy services coordinated by the Alfred hospital<sup>8</sup>.

In the context of HIV *treatment as prevention* and changes to the regulation of HIV treatment such as the recent removal of CD4 count restrictions on access to treatment<sup>9</sup>, there is increasing sector dialogue around reducing the barriers to HIV care and treatment. In 2012, the Pharmaceutical Benefits Scheme (PBS) maximum quantity of ART dispensable was increased, from one to two months' supply, effectively halving the co-payment<sup>10</sup>. There has been a call for free access to ART in South Australia<sup>11</sup>. In early 2013, Positive Life NSW recommended co-payments for ART to be waived, arguing that the individual benefits (relieving financial stress, improving treatment uptake and adherence), and community benefits (preventing HIV transmission through reduced community viral load) outweigh the cost-effectiveness<sup>12,13</sup>. Changes to funding and co-payments in Victoria have been considered.

The purpose of this report is to use available empirical data to describe antiretroviral dispensing and associated patient costs in Victoria to make recommendations on reducing financial barriers to HIV treatment.

## **METHODS**

### **Background**

An abbreviated review of peer reviewed and grey literature was conducted using standard search methods. The literature has been summarised to provide an overview of health services and systems, health funding and expenditure and provisions for HIV treatment in Australia and Victoria.

### **Routine data**

Publicly available data on the Pharmaceutical Benefits Scheme (PBS) expenditure nationally and by state and territories for the most recent two years (2012-13) was accessed and summaries of this data conducted. Where there were anomalies in the data advice was sought from the PBS Information Management Systems division of the PBS. A summary of antiretroviral items processed through Medicare were produced using online PBS item reports.

### **Pharmacy dispensing data**

Non-identifiable data on all ART items dispensed from Alfred Health (Alfred hospital inpatients [discharge scripts] and two outpatient pharmacies, Caulfield General Medical Centre and Melbourne Sexual Health Centre) were extracted from the dispensing database by pharmacy staff. An item is one generic product, which may contain more than one active antiretroviral ingredient. The time period for analysis was January 2012 to November 2013 and included 60,225 records from 3,903 individuals. This represented 83.8% of all PBS antiretrovirals dispensed in Victoria for the same time period (see Appendix 1). Individuals with multiple or only one episode of dispensing were included in the analysis. Participants were uniquely identified by their Medicare number, and dispensing episodes that could not be uniquely linked to an individual were excluded (n=466). Items dispensed for the purpose of non-occupational post exposure prophylaxis (n=432), as part of clinical trial (n=1101), or were provided under a compassionate access scheme (n=167) were also excluded. Concession status was assigned to records with a valid concession number and to all records on the same date as a record with a valid concession number. Analysis was stratified into sites where a co-payment is charged (Alfred Health and Caulfield General Medical Centre) and where no co-payment is charged (MSHC). This aspect of the study was approved by the Alfred Health Ethics Committee (Project 221/12).

## HIV Futures 7

The authors of HIV Futures 7 provided unweighted data from Victorian participants. HIV Futures is a periodic, cross sectional survey of people living with HIV in Australia. A select description of the methods will follow as the complete methods and instrument have been published previously<sup>14</sup>. HIV Futures 7 survey was administered nationally from October 2011 to April 2012, both online and in paper format. Participants were anonymous and surveys could be accessed through a variety of sites including community organisations, GPs, hospitals and personal invitation if they had previously completed a HIV Futures survey. HIV Futures survey collects data on demographics, accommodation, health and treatments, services and communities, sex and relationships, employment, recreational drug use, and finances.

## BACKGROUND

### HEALTH SYSTEMS AND SERVICES IN AUSTRALIA

#### Access to health services

The Australian Government significantly subsidises the cost of health services through an insurance scheme, Medicare. Person's eligible for Medicare subsidised health services include Australian citizens, New Zealand citizens, people with a permanent residency visa and those who have applied for a permanent residency visa, persons who have permission to work in Australia or persons who can prove a relationship to an Australian Citizen. Visitors from a country that has a Reciprocal Health Care Agreement with Australia are also eligible for the benefits of Medicare<sup>15</sup>.

There are further reductions in the cost of health goods and services through concession cards, which aim to protect those who are vulnerable to high health-related costs. Each card has its own eligibility requirements. Concession cards include Commonwealth Seniors Health Card, Ex-Carer Allowance (Child) Health Care Card , Foster Child Health Care Card , Health Care Card , Low Income Health Care Card and Pensioner Concession Card<sup>15</sup>.

#### Access to prescription medications

In addition to subsidising health services, the Australian Government subsidises prescription medication. The pharmaceutical benefits scheme (PBS) is designed to reduce financial barriers to essential medication. The PBS schedule lists medications that are subsidised by the government and is managed by the Commonwealth Department of Health and administered by the Commonwealth Department of Human Services<sup>16</sup>.

Australian residents who hold a current Medicare card are eligible to access PBS subsidised prescription medications. Visitors from countries with which Australia has a Reciprocal Health Care Agreement are also eligible. These countries include United Kingdom, Ireland, New Zealand, Malta, Italy, Sweden, the Netherlands, Finland, Norway, Belgium and Slovenia<sup>16</sup>. Persons with a Department of Veterans' Affairs Card are also eligible for all PBS medicines and medicines are supplied at the concessional rate<sup>16</sup>.

Under the PBS scheme, eligible persons prescribed medications listed on the PBS, are only required to pay a set co-payment, with holders of a concession card having a further reduced co-payment amount (Table 1). The Australian Government pays the remaining cost of the medicine. The amount of co-payment is adjusted on the 1<sup>st</sup> January each year according to the inflation (Consumer Price Index (CPI))<sup>16</sup>.



## Controlling individual costs - the Safety Net scheme

The Safety Net scheme provides a cap on a person's expenditure on medicines and is calculated over a calendar year. Once a person's expenditure (through co-payments) has reached the Safety Net threshold, they are entitled to a Safety Net card, and the co-payment amount is reduced. The Safety Net contribution for general patients is the concessional co-payment rate and concessional card holders are dispensed further medication at no charge (Table 1)<sup>16</sup>. The same Safety Net threshold is applied to a family unit regardless of the composition of the family unit. The PBS explicitly states that the family unit includes same sex couple, as long as they live together, unless illness prevents couples living together<sup>16</sup>.

**Table 1.** PBS co-payment schedule and Safety Net thresholds 2012-2014

	general patient			concession card holder		
	2012	2013	2014	2012	2013	2014
Patient co-payment*	\$35.40	Up to \$36.10	\$36.90	\$5.80	\$5.90	\$6.00
Safety Net Threshold	\$1363.30	\$1390.60	\$1421.20	\$348.00	\$354.00	\$360.00
Safety Net Patient Contribution	\$5.80	\$5.90	\$6.00	Free	Free	Free

\*Co-payments are up to the amount

The benefits of the Medicare and PBS Safety Net policies are limited by patient awareness of the scheme given individuals need to initiate application for a Safety Net card once eligible. The PBS Safety Net also requires individuals to keep a record of their expenses (expenses under the Medicare Safety Net are automatically recorded when a rebate is claimed). Others have called for a single integrated and automated Safety Net system to ensure people receive the financial benefits associated with the PBS Safety Net Scheme they are entitled to<sup>17,18</sup>.

## Ineligible people

There are persons who are ineligible for Medicare, and therefore cannot access medicines subsidised by the PBS. Ineligible persons include overseas students, people on working visas, or the partners of Australian residents awaiting outcomes of applications for residency. Options for access to essential

medications for ineligible persons are limited and costly. The number of HIV positive temporary residents in Australia is estimated to be 250-300<sup>19</sup>. Ineligible persons can access medical care from a specialist, and receive prescriptions for ART, however have to pay the full costs of medical care and medicines<sup>20</sup>. As an example, the cost of two months' supply of a preferred initial combination regimen, efavirenz/tenofovir disoproxil (EFV/TDF/FTC)<sup>21</sup> is \$4146.72<sup>22</sup>. Another option is to purchase the equivalent generic medications online and import them. This is legal, and a 90 day supply of the previous regimen was \$453.22 from one supplier<sup>23</sup>. However, this process still requires a prescription<sup>20</sup>.

## HEALTH FUNDING AND EXPENDITURE

### Health service expenditure

An estimated \$140.2 billion was spent by the Australian government and individuals on health services in 2011-12. Individual co-payments for health services accounted for an additional \$24.3 billion (14.8% of total expenditure) of the total health expenditure in 2011-12; this includes where individuals met the full cost, or shared the costs of goods and services. Funding by individuals has increased on average 6% per annum since 2001-02. Over two thirds (39.2%) of individual expenditure was for prescription medication<sup>24</sup>. For the year ending 30 June 2013, Government Pharmaceutical Benefits expenditure totalled \$8,996.4 million, a 2.1% decrease from the previous year. Patient contributions for financial year 2013 totalled \$1,495.4 million (14.0% of total prescription medication expenditure), a slight decrease from the previous financial year. In comparison with 15 other OECD countries, Australia ranked 6<sup>th</sup> for per capita private expenditure on prescription medications<sup>25</sup>. A recent Commonwealth Fund survey of eleven high income countries reported that 21% of Australians had spent more than US\$1,000 out-of-pocket costs on medical spending in the previous year<sup>26</sup>.

### Highly specialised drugs program

Antiretroviral medications are managed under the highly specialised drugs (HSD) program. Medications under HSD program are medications that because of their clinical use are subject to restricted supply. The legislative basis of this program is an arrangement made under section 100 (s100) of the *National Health Act 1953 (NH Act)*. The PBS subsidises HSD and the program is a joint initiative of the Australian Government, state and territory governments. The Australian Government funds payments to pharmacies through the Commonwealth Own Purpose Expenditure (COPE) mechanism. Expenditure on HSD for financial year 2012/13 totalled \$101.3 million, an almost 8% increase from the previous financial year<sup>27</sup> and the HSD program has been identified as a key

driver of PBS expenditure in recent years<sup>28</sup>. For 2010-11, HIV/AIDS antiretroviral drugs represented the greatest percentage contribution to expenditure in the HSD program<sup>28</sup>.

### Dispensing prices

When pharmacists dispense medicines listed under the PBS, the Australian Government pays the pharmacist the PBS dispensed price, minus any patient contribution. The PBS dispensed price includes the pharmacists cost, mark-up, dispensing fee and any other entitled fees (e.g. Safety Net recording fee). The pharmacists cost includes the manufacturers cost plus the wholesale mark-up. The mark-up covers the costs of storage and handling of medicines. For HSD dispensed by public hospitals, the dispensed price excludes a pharmacy mark-up. The dispensing fees are determined by the Pharmaceutical Benefits Remuneration Tribunal (the Tribunal) and are a compulsory addition to the mark-up component of dispensed price. One dispensing fee is applied per prescription, regardless of quantity dispensed<sup>29</sup>. The PBS publishes maximum quantities and agreed dispensing prices for antiretroviral (ARV) medications for public hospitals (Appendix 2)<sup>22</sup>. A list of dispensing prices from 1<sup>st</sup> January 2013 has been provided for the ARVs recorded in the hospital pharmacy dataset only for brevity. There is a maximum of five repeat scripts for all medications listed, and maximum quantity dispensed is two months' supply.

### Cost sharing

A patient contribution to prescription medication was introduced on 1 March 1960 following the passage of the *National Health Act No. 72 1959*. The two rationales for the introduction of cost sharing in 1960 were to offset PBS expenditure and encourage efficient use of medicines<sup>30</sup>. Despite the introduction of a patient contribution, prescription volumes and expenditure doubled in the decade from 1960. To offset the rising PBS expenditure, patient contributions have continued to increase. A concessional beneficial category was introduced on 1 January 1983 to assist low-income earners and the unemployed. To control the costs experienced by chronically ill individuals, safety net arrangements were established in 1988. The arrangement was first based on number of prescriptions, and in 1990 the Safety Net threshold had changed to the current model based on an amount of personal expenditure<sup>31</sup>. There is debate regarding the effectiveness of co-payments encouraging the efficient use of health resources, and questioning of the economic theory behind cost sharing<sup>32</sup>. Those advocating that co-payments help limit unnecessary expenditure argue co-payments act as a 'price signal' to users, counteracting wastage and improving efficient use of the PBS. The PBS acts as insurance coverage, thus reducing the 'price signal', and creating "moral hazard". Moral hazard is a reduction in incentive for insured individuals to appropriately use common resources. In economics, moral hazard is countered

by reinstating the price signal tempered by insurance<sup>30</sup>. In this context, co-payments are argued to be a mechanism to ensure moral hazard does not occur, and individual's value subsidised prescription medication. However, the notion of a price signal to encourage efficient use of health resources seems at odds with the fact that ART is an essential medicine needed to maintain the health of PLWH (and more recently considered a mechanism for prevention).

### Financial burden and health seeking behaviour

Attempts have been made to estimate the relationship between medication utilisation and co-payments. A large Australian ecological study found a reduced use of discretionary and essential medicines, ranging from a 3% (anti-Parkinson's) to 11% (proton- pump inhibitors), following the 2005 increase in co-payments. The range of essential medications prescribed for chronic conditions that decreased included anti-epileptics, anti-Parkinson's, combination asthma and insulin medicines<sup>33</sup>. Other research demonstrated decreased dispensing of two categories of drugs across a variety of geographical regions in Australia following the same increase in co-payments<sup>34</sup>. There is some literature on the financial burden the cost of medications places on individuals. A random telephone survey of approximately 1500 households in NSW reported that almost a third of participants experienced a moderate to heavy financial burden from prescriptions. Moderate to heavy financial burden disproportionately affected those who were older, had a chronic illness and had lower income (<40k per annum)<sup>35</sup>. Similar findings were reported from a cross sectional study of patients in respiratory ambulatory care in NSW<sup>36</sup>. Other estimates of the proportion of Australians not collecting all medicines prescribed, or missing doses due to financial hardship range from 10%-20%<sup>26 35 36-38</sup>.

To our knowledge, only one study in Australia has examined the financial burden of ART specifically and the impact on HIV treatment adherence. The authors reported almost one fifth of participants at a NSW hospital found it 'difficult' or 'very difficult' to meet medication costs. Over 10% of patients (n=48) reported they had delayed collecting prescription medication and 9.0% (n=30) patients has stopped ART due to pharmacy costs<sup>39</sup>.

These studies found similar results in that specific patient groups (chronically ill, low income) are particularly sensitive to the price of medications and highlight that current mechanism (i.e. concession card, Safety Net scheme) may not protect all people from experiencing financial hardship. There is a clear gap in the literature on pharmaceutical co-payment costs and their impact on patient care<sup>40</sup>. To obtain a reliable picture of the impact of co-payments on ART adherence, detailed prospective scrutiny of population-level data and the establishment of individual-level prospective cohorts of PLWH are needed.

## Precedence for waiving co-payments

There is precedence for reducing financial barriers to treatment for infectious diseases nationally and in Victoria. Northern Territory and Western Australia provide free HIV and sexual health services, including medication<sup>11,41</sup> and NSW and Victoria provide free treatment for tuberculosis, bacterial sexually transmitted infections and leprosy<sup>8,42</sup>. These examples underscore recognition by governments of the importance of removing financial barriers to health care for personal and community benefit, including the improved health of individuals and enhanced prevention of transmission of infectious diseases.

## TREATMENT FOR HIV

### Treatment guidelines for HIV in Australia

The current therapeutic guidelines for treatment of HIV are two 'backbone' Nucleoside Reverse Transcriptase Inhibitors (NRTIs) plus a third active drug, either a Non-Nucleotide Reverse Transcriptase Inhibitor (NNRTI), or one Protease Inhibitor (PI), or another alternative (Appendix 3). Preferred regimens for treatment naïve patients include:

- efavirenz/tenofovir disoproxil fumarate/emtricitabine (EFV/TDF/FTC)
- ritonavir-boosted atazanavir + tenofovir disoproxil fumarate/emtricitabine (ATV/r + TDF/FTC)
- ritonavir-boosted darunavir + tenofovir disoproxil fumarate/emtricitabine (DRV/r + TDF/FTC)
- raltegravir + tenofovir disoproxil fumarate/emtricitabine (RAL + TDF/FTC)<sup>21,43</sup>.

### Accessing antiretroviral medication

To access subsidised HSD, including ART, a person must be eligible for Medicare as described previously<sup>15</sup>. To prescribe HSD, medical practitioners must be affiliated with a specialist public or private hospital unit. An accredited prescriber of medication for the treatment of HIV or AIDS is defined by the Australian Government as "a medical practitioner approved by a State or Territory to prescribe medication for the treatment of HIV or AIDS for this Special Arrangement"<sup>7</sup>. There are currently 38 accredited ART prescribers in Victoria, with only two prescribers outside of metropolitan Melbourne<sup>44</sup>.

Dispensing of HSD can only be done and claimed for by hospital pharmacies, or by a community pharmacy or friendly society who acts as an agent for the hospital<sup>7</sup>. The exception to this is the Enhanced Medication Access Scheme operating in NSW. Under that scheme, people can have up to three months'

supply of ART dispensed by a community pharmacy and delivered to a preferred address<sup>45</sup>. The PBS restricts the maximum quantities of medicine able to be dispensed (currently two months for ART) which affects total patient co-payments which are attached to dispensing events.

### **Barriers to treatment**

There are a range of identified barriers to accessing HIV care, uptake and continuation of treatment<sup>46</sup>. Lack of information is a barrier to treatment for those newly diagnosed<sup>47</sup>, particularly in an era of continually updating evidence and changing policies and guidelines on early treatment<sup>9</sup>. Geographical distance is a significant barrier to accessing HIV clinics, medical facilities and health professionals<sup>48</sup>. System resource associated barriers include a lack of adequately trained medical health personnel such as doctors, nurses and psychologists trained to provide HIV/AIDS care<sup>49</sup>. Personal resource barriers including lack of finances, employment, a non-supportive work environment and lack of adequate and affordable housing have shown to be a barrier to care for people living with HIV<sup>50</sup>. As reported earlier, knowledge of the PBS Safety Net scheme and the requirements for individuals to monitor their dispensing co-payments may also act as a barrier to ART adherence<sup>17,18</sup>. Without a base of adequate personal and financial resources the ability for an individual living with HIV/AIDS to access health care may be difficult<sup>51</sup>.

### **Financial impact of side effects from current regimens and co-morbidities**

ART regimens have evolved considerably since 1996<sup>21</sup> with improvements in tolerability and dosing convenience. However, medications for adverse events associated with ART may still be required and affect adherence and cause an increased financial burden<sup>52</sup>. Though not an exhaustive list, some side-effects shown to be particularly associated with non-adherence to ART include cough, confusion, taste disturbances, nausea and vomiting, diarrhoea, headache, numbness, bad taste and general fatigue<sup>49,52-54</sup>. There are also longer lasting metabolic side effects from taking ART<sup>55</sup>. Classes of antiretroviral medicines like protease inhibitors are associated with complications such as lipodystrophy, dyslipidaemia, osteoporosis and abnormal glycaemic readings which may lead to serious hepatic, cardiovascular and skeletal health problems<sup>21</sup>. To manage these complications, changes in HIV therapy or additional non-antiretroviral drugs may have to be added into the treatment regimen<sup>54</sup>. This further complicates HIV treatment and can increase the pill burden and polypharmacy for PLWH<sup>55</sup>. Prescriptions for additional medication to ART to manage side-effects over longer lifetimes add to the cumulative financial burden for people living with HIV<sup>56</sup>.

Increasing financial burden may also be due to prescription medications required to manage additional chronic diseases. There is a breadth of the literature on comorbidities among PLWH, including psychiatric disorders, 'mood disorders', hypertension, diabetes mellitus, renal failure and bone fracture<sup>57 58 59 60</sup>. Many studies showed the increasing co-morbid burden associated with older PLWH.

### **Adherence to HIV treatment for patient care and episodes of treatment disruption**

There is a substantial amount of international literature discouraging interruption of ART<sup>61</sup> with suboptimal adherence predicting virological failure<sup>62-65</sup>, the development of HIV drug resistance<sup>66-68</sup> and mortality<sup>69-71</sup>. Clinical guidelines reflect the current evidence, with planned interruption of long term ART is not recommended<sup>21</sup>. A recent study reported the incidence of treatment interruption (>30 days without ART) among over 700 Australian PLWH from 2000-2010 was 6.9 (6.2-7.8) per 100 person years (PY). The authors reported high viral loads (>10,000 copies per mL) during treatment interruptions with implications for individual health, HIV disease progression and onward transmission of HIV. The most important predictors of treatment interruption in this study were those related to the side effect profile and complexity of regimens, including pill burden<sup>72</sup>. Another Australian survey identified a range of personal factors associated with non-adherence to ART included younger age, psychiatric co-morbidities, lower self-value for treatment adherence, alcohol and substance abuse, stressful life events and personal beliefs about the benefits of ART<sup>50</sup>. Treatment interruptions for PLWH differ from other chronic disease in that poor adherence is directly linked to poor clinical outcomes, particularly limiting of treatment options and viral resistance.

### **Prevention of HIV transmission**

In addition to the importance of ART treatment and adherence for individual health benefit, ART is now considered a component of HIV prevention. Treatment of individuals with HIV to prevent ongoing transmission has been documented in the literature and key studies include a randomised controlled trial<sup>6</sup>, ecological studies<sup>73,74</sup> and mathematical modelling<sup>75</sup>. In a randomised controlled trial of sero-discordant heterosexual couples, early commencement of ART led to a 96% relative reduction in sexual transmissions of HIV compared to a delayed ART commencement group<sup>6</sup>. Ecological studies in San Francisco utilising surveillance data<sup>73</sup> and British Columbia among a population of injecting drug users<sup>74</sup> demonstrated an association between reductions in 'community viral load' through increasing uptake of ART and a reduction in HIV incidence. Mathematical models have shown that voluntary HIV testing followed by initiation of ARVs could lead to a 95% reduction in HIV transmission over a 10 year period<sup>75</sup>.

## RESULTS

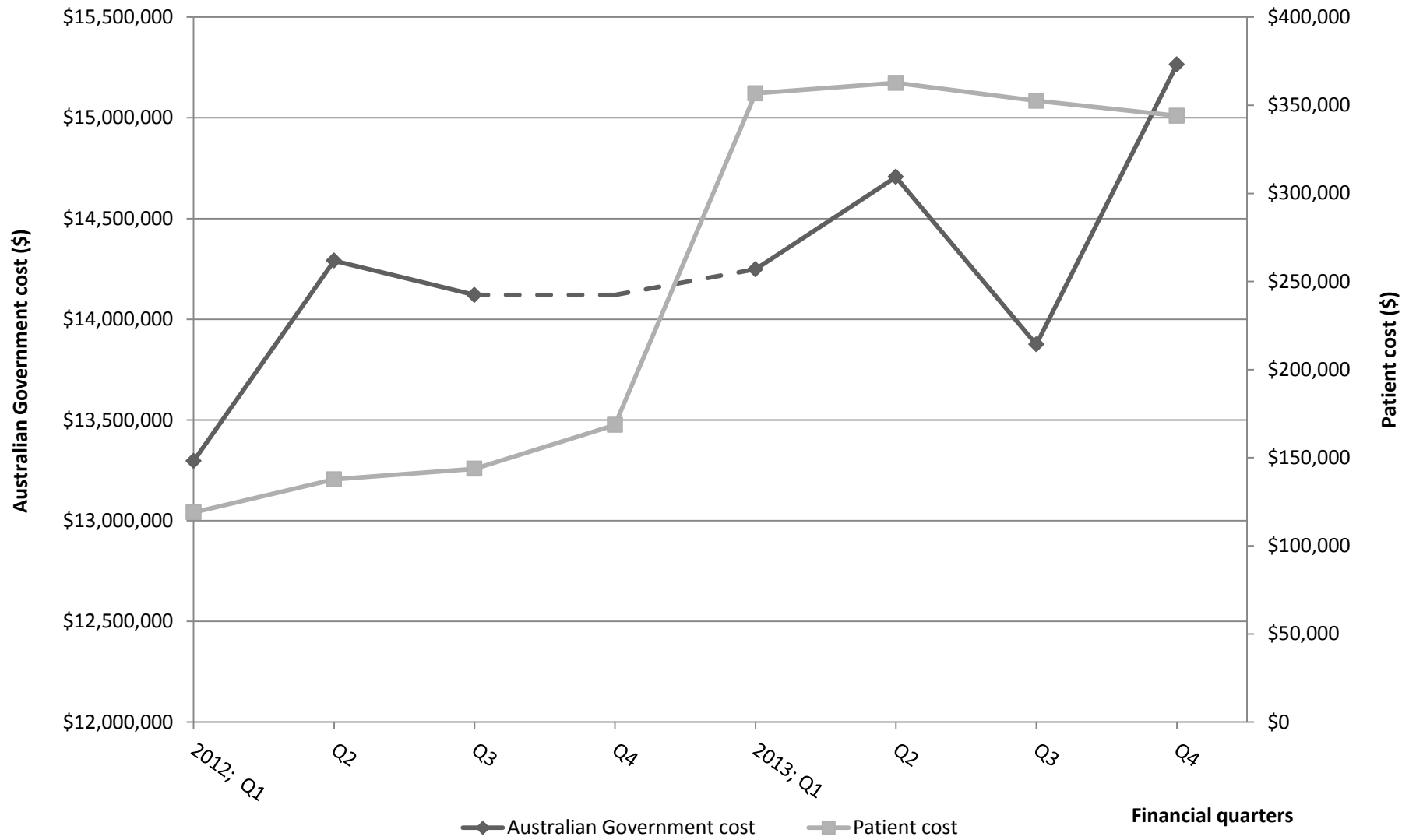
### ROUTINE DATA

#### Victorian expenditure on antiretroviral medications

The 2012-13 Australian Government expenditure for antiretroviral medications was an estimated \$218,039,298 and the patient cost was an estimated \$3,614,440. For the same financial period, the expenditure attributed to Victorian prescriptions was an estimated \$58,094,670 and the patient cost was an estimated \$1,415,977<sup>76</sup> (Figure 1). There are some limitations to the PBS expenditure data. First, recent changes from manual to online claims (personal communication, Andrew Kopras, PBS Information Management System) meant 2012 quarter 4 (Q4) data was not comparable to other quarters (omitted from Figure 1, denoted by dashed line). Second, data may relate to drugs distributed in earlier claim periods for which details were submitted late<sup>76</sup>. Finally, previously with manual claiming, hospitals claimed the total cost of the drug and the Commonwealth Department of Human Services (DHS) then estimated the patient contribution as a fixed percentage of the total cost. With the recent change to on-line claiming, the actual patient cost is reported (personal communication, Andrew Kopras, PBS Information Management System). Figure 1 shows this change resulted in a substantial increase in the reported co-payment patient costs associated with ART dispensing. Additionally, this means that comparisons between states of patient contributions were not possible as changes to claiming were affected in different quarters in some states (i.e. actual patient contributions recorded in Victoria from Q1 2013 and from Q2 in NSW).



**Figure 1.** Public Hospital Dispensed Expenditure,Victoria, highly specialised drug program: current 2 years



## PHARMACY DISPENSING DATA

### Overall dispensing

A total of 60,225 ARV items were dispensed by Alfred Health from January 2012 to November 2013. Approximately 3,500 individuals were dispensed to each calendar year. The distribution of items was stable across financial quarters, with the exception of quarter four 2013, where data was incomplete. The average number of dispensing episodes per person per calendar year was seven (Table 2), reflecting the maximum two months' supply of ARVs individuals can receive per dispensing episode (see Appendix 2). In 2013, 37.9% of individuals dispensed ARVs held a concession card. More than two thirds of items (67.1%) were dispensed through MSHC where no dispensing co-payments are required. This finding is consistent with previous analysis of Victorian PLWH receiving care through two GP practices that showed most were dispensed ARVs through MSHC, despite these practices being in close proximity (<1km) to the Alfred hospital<sup>77</sup>.

**Table 2.** Description of dispensing records overall, and by sites, January 2012- November 2013

	All sites	Alfred health and Caulfield campuses	Melbourne Sexual Health Centre
Variable	n	n	n
Number of dispensing records (items)	60225	19805	40420
Number of episodes of dispensing	23469	7899	15570
Individuals dispensed to	3903	1160	2743
Median number of dispensing episodes per person, per calendar year [Interquartile range; IQR]	7 [6, 8]	8 [7,11]	6 [6,7]
Financial quarters			
Q1	15713	5261	10452
Q2	15886	5145	10741
Q3	15852	5212	10640
Q4	12774*	4187*	8587*

\* Q4 2013 data to 21 Nov only

## Items dispensed

Patients were most commonly (33.6%) dispensed two items of ART, with one quarter (24.9%) being dispensed one ART item only. More than one in five patients (21.3%) were dispensed more than four items per dispensing episode (Table 3). Number of items dispensed was generally consistent between the Alfred and MSHC. Concession card holders were more likely to be dispensed a higher number of items per dispensing episode; of those dispensed four or more items per dispensing episode, 41.1% were concession card holders.

For the most common scenario of patients receiving a two-item regimens, co-payments for patients attending Alfred health sites (29.0%) in 2013 would have been \$11.80 (concessional) or \$72.20 (general) per two months' supply of ART. This would equate to an annual cost of \$70.80 (concessional) or \$433.20 (general). If patients were only prescribed ART, these cumulative annual amounts are less than the respective Safety Net threshold (Table 1) therefore no reduction in the co-payment would occur. For patients being dispensed four or more items at Alfred health sites (22.1% of dispensing episodes), the co-payment per two months in 2013 would have been at a minimum \$23.60 (concessional) or \$144.40 (general). This would equate to an annual cost of at least \$141.60 and \$866.40, respectively. These annual amounts are also less than the Safety Net threshold for both categories of patient (Table 1). The recording of concession card status was most robust for 2013 due to improvements in administrative procedures, although completeness of recording varied between sites. Therefore concession status was aggregated across all sites and only presented for 2013.

**Table 3.** Number of items dispensed, per individual per day, by concession status and site, January 2012 to November 2013

Number	All sites (n=23469)		Alfred health and Caulfield campuses (n=7900)		Melbourne Sexual Health Centre (n=15569)		
	n	%	Items (n) and concession status (%) in 2013 n (%)	n	%	n	%
1	5843	24.9	2867 (22.4)	2364	29.9	3479	22.3
2	7877	33.6	3741 (29.6)	2291	29.0	5586	35.9
3	4744	20.2	2095 (38.9)	1494	18.9	3250	20.9
4*	3149	13.4	1461 (41.1)	1132	14.3	2017	13.0
>4*	1856	7.9	901 (39.2)	618	7.8	1238	7.9

\*Of those episodes with >=4 items (n=5005), 18.9% of items were Ritonavir

A sub analysis of dispensing at Alfred health and Caulfield campuses only was conducted to examine patient utilisation of the PBS Safety Net scheme. In 2013, there were 3,713 episodes of dispensing to individuals of which 45.5% were concession card holders. Among all concession card holders, 382 (22.9%) had recorded cumulative patient cost in 2013 above the Safety Net threshold (>\$354.00) denoting they were eligible to receive a Safety Net Card. However, of those 382 concession card holders with expenditure above the threshold, only 10.7% had a Safety Net card recorded in 2013 (Appendix 4). This finding is consistent with prior literature describing the lack of awareness of the Safety Net and the burden associated with patients being required to monitor their own dispensing costs. These reports have called for automating the PBS Safety Net scheme, or integrating it with the automated Medicare Safety Net scheme to ensure people in need of financial relief receive their entitlements<sup>17,18</sup>.

These data indicate a meaningful financial burden associated with ART in Victoria for both concessional and general patients. The financial burden is particularly high for those dispensed a high number of ART items per dispensing episode. Regimens with four or more active ARV are less common and more likely to be dispensed to those who have had HIV longer, PLWH who are older and perhaps those experiencing higher costs associated with the dispensing of other medications for co-morbidities. In addition, concession card holders were more likely to have more ART items, yet their cumulative annual cost of ART alone is unlikely to reach the Safety Net amount, with no financial relief provided through this scheme. For those concession card holders who had a cumulative annual cost above the Safety Net threshold, the majority did not have a Safety Net Card recorded despite being eligible for one.

## HIV FUTURES 7

### Medications

Of the 1,058 participants in HIV Futures 7, 302 (29.2%) resided in Victoria. The majority of Victorian participants (77.7%) were aged older than 40 years, identified as gay (80.5%), lived in an inner suburb (69.2%), and reported little to no transport difficulties (75.5% reported access to a car; 51.7% reported very easy access to public transport) (data not shown).

The majority of participants were taking ART at the time of the survey (88.4%), a proportion higher than reported by HIV positive gay men completing the Melbourne Gay Community Periodic Survey (2009:67.6%, 2010:74.5%, 2011:76.8%, 2012:77.9%, 2013:82.4%)<sup>5</sup>. As such, the following data may represent a sample of Victorian PLWH more engaged with ART services, with a greater perceived need for ART, more motivated to seek and adhere to treatment or

experience fewer barriers (financial or otherwise) to accessing ART. Almost a third of participants were taking medication for mental health conditions (33.8%), and over a third (39.7%) were taking medications other than ART, lipid-lowering or medications for mental health conditions (Table 7).

**Table 7.** Medication use (n=302)

Variables	%
Experience of HIV treatments	
Currently taking ART	88.4
Taken ART in the past, but not now	1.0
Never taken ART	9.9
What is the length of your prescription (weeks) (median[IQR])	12 (12,13)
Experience of other medications	
Medications to control BP	14.2
Medications to control blood lipids/cholesterol	20.5
Medications for mental health	33.8
Apart from ART and those above, any prescribed medications	39.7

### Finances and expenditure

Approximately half of participants reported a salary as their main source of income (50.3%), with approximately one third (34.1%) relying primarily on government benefits. The median after tax income of participants was \$685 per week and the median expenditure on ART was \$10 per week, with a higher expenditure on other medications (\$15 per week). For participants who were on ART and other medication, these expenditure amounts constitute an estimated 3.6% of their weekly after tax income. One in ten participants reported finding the cost of meeting co-payments for ART a ‘little difficult’ or ‘very difficult’. A large proportion (42.4%) of participants reported ‘not applicable’ for the question about their ability to meet the cost of co-payments (compared to only 14.9% reporting ‘not applicable’ in relation to cost of co-payments for other medications) (Table 8). Given that 67% of ART items dispensed through the Alfred health pharmacy were dispensed at the MSHC, a possible explanation for the high number of ‘not applicable’ responses is that many of these participants might have been attending MSHC to receive their ARTs, where a co-payment is not applied. Nationally, over a third (36.3%) of HIV Futures 7 participants reported meeting the cost of co-payments difficult or very difficult, suggesting the Victoria data may underestimate the financial burden of ART experience by PLHW due to free ART at MSHC<sup>12</sup>.

**Table 8.** Description of work, finances and expenditure on medications (n=302)

Variables	n	%
Main source of income		
Salary	152	50.3
Superannuation/annuity/savings	15	5.0
Benefits/pension/social security	103	34.1
Other*	26	8.6
After tax weekly income (median [IQR]) (n=272)	685 (350,1053)	
Partners after tax weekly income (median [IQR]) (n=78)	700 (468,1000)	
Receiving rental assistance or a rental subsidy		
Yes	69	22.8
Weekly expenditure of ART (median[IQR]) (n=40)	10 (5.6,25.2)	
Weekly expenditure on other medication (median[IQR]) (n=165)	13.3 (9.0,30.0)	
Weekly expenditure of ART for those reporting government benefits as main source of income (median[IQR]) (n=17)	10.0(2.0,10.14)	
Weekly expenditure on other medication for those reporting government benefits as main source of income (median IQR]) (n=61)	11.1(9.3,20.0)	
In past 6 months, difficulty meeting costs of:		
Co-payment for ART		
Not at all difficult	125	41.4
A little difficult	18	6.0
Very difficult	13	4.3
Not applicable	128	42.4
Other medication		
Not at all difficult	141	46.7
A little difficult	77	25.5
Very difficult	19	6.3
Not applicable	45	14.9

\*Other includes partner, friends, family support and other

## DISCUSSION

It is reasonable to assume the PBS will remain largely unchanged in the near future as the scheme is considered sustainable, provides the majority of the eligible population with access to affordable medication and includes mechanisms to protect individuals from the costs of prescription medications<sup>78</sup>. Co-payments are likely to remain given there is evidence that the twin objectives, offsetting government cost and improving efficiency, are reasonable and being achieved among general PBS users. However, in the case of ART, while patient co-payments clearly offset Commonwealth government costs, co-payments are unlikely to improve the efficiency of the system given the use of ART could not be considered discretionary and is essential for the long-term maintenance of good health for PLWH. In the case of ART, PLWH are asked to co-pay for the dispensing of drugs that stave off substantial morbidity and premature mortality; data presented in this report suggest these cumulative co-payment amount is significantly higher than previously thought following changes from manual to online claiming by pharmacies to the PBS in 2012 (Figure 1). These cumulative co-payments also do not account for patient costs associated with the dispensing of other drugs needed to manage co-morbidities, some of which may be adverse effects of ART, an additional burden more likely to affect older PLWH, those with longer term established HIV infections and those more likely to be eligible concession card holders.

Assessing the affordability of ART requires key pieces of data including individuals' medication costs (dictated by number of items dispensed and concession status) and an assessment of this cost relative to income and competing living costs. In relation to medication costs, patients described in our analysis of pharmacy data were most commonly prescribed two ART items and most were not concession card holders; these patients were liable for two co-payments for two months' supply of medications (up to \$72.20 in 2013). In addition, the majority of the more than one in five patients being prescribed four or more items of ART and not holding a concession card were liable for a minimum of \$144.40 for two months' supply of ART. Again, these figures are independent of the costs associated with dispensing non-ART medications. There is no intermediate stratum between general patients and concession card holders in the PBS co-payments or Safety Net thresholds; patients ineligible for a concession card pay the same co-payment amount and have the same Safety Net thresholds applied, regardless of income (Table 1). Given the co-payment amounts described above, PLWH on low working incomes may be experiencing significant financial pressures. Although it is impossible to assess the extent to which these medication costs operate as a financial barrier to commencing and adhering to ART without patient income and living costs, these are not insubstantial amounts and other data suggest a degree of financial burden associated with ART exists for some patients in Australia. One in five ART patients at a NSW hospital indicated difficulties in meeting medication costs and approximately one in 10 reported delaying medication collection or stopping ART due to pharmacy costs<sup>39</sup>. Although data from Victorian HIV Futures 7

indicates fewer (approximately one in 10) participants indicating some difficulty in managing the costs of ART, a substantial proportion indicated this question was not applicable, potentially indicating the dispensing of ART through MSHC where no co-payment is charged. Indeed, our analysis of pharmacy data shows that more than two-thirds of patients dispensed ART through Alfred health were picking up their medications at the MSHC with no co-payments. While it is not possible to assess the extent to which accessing MSHC for ART dispensing is being driven by convenience versus alleviating financial burden, recent analysis of the same pharmacy data alongside data from general practices suggests the lack of co-payment is a key driver of dispensing location<sup>77</sup>.

Two key mechanisms for dispensing fee relief exist for ART patients; concession cards and the PBS Safety Net scheme. Although concession cards offer substantially reduced dispensing costs, our data shows a higher proportion of concession card holders among those dispensed more ART items. Therefore, for some concession card patients the reduced co-payment is off-set by being dispensed a greater number of ART items. As indicated above, the financial burden of non-ART medications may also be higher for those with concession cards. Regarding the PBS Safety Net scheme, most concession card holders being dispensed ART through Alfred Health sites (excluding MSHC) did not meet the annual expenditure to activate the Safety Net. In addition, a proportion of concession patients eligible to receive a Safety Net card during 2013 (their cumulative calendar cost exceeded \$354.00) did not receive one. A cautious interpretation may be that many eligible individuals are either not aware of the Safety Net scheme or application requirements for a Safety Net card and the requirement to keep a record of their prescription medications were too onerous<sup>17,18</sup>. While patients must collect s100 medications from a hospital pharmacy, they may collect other medications from community pharmacies, requiring them to maintain their records across multiple sites as their records are not linked within the system (unlike the Medicare Safety Net scheme). Given the Alfred pharmacy coordinates the dispensing of ART to over 3500 individuals per calendar year across multiple sites; it may not be possible to ensure each patient receives individual education on concession cards, Safety Net mechanisms, treatment regimens, costs of medications, budgeting and financial advice. However, a range of options are potentially available to promote fee relief for eligible patients receiving ART, including the general promotion of mechanisms for dispensing fee relief and a clinical pharmacy review to ensure patient education and consistent record keeping for Safety Net purposes.

In an ART era of improved tolerability and effectiveness, alongside a recently established role in HIV prevention, jurisdictional precedents for offering free health services and medications to enhance health and disease prevention outcomes could readily be applied to the provision of ART to PLWH. The free dispensing of ART at the MSHC could be justified in this context, and it would appear more equitable to consider subsidising the dispensing costs of ART



universally across Victoria. To maximise the benefits of ART, treatment must be affordable for a lifetime to minimise the risk of interruption. In the context of treatment interruption, HIV is a special case relative to other clinically managed chronic disease. HIV treatment interruption has significant consequences for HIV progression, including poor clinical outcomes, the limiting of treatment options, and the potential for viral resistance. The emergence of viral resistance not only affects individuals under care but can have public health implications through the transmission of treatment resistant strains of HIV.

Currently the use of prescription medicines in Australia is guided by The National Medicines Policy (NMP) which explicitly states that cost “should not constitute a substantial barrier to people’s access to medicine”<sup>79</sup>. Although for many PLWH in Victoria ART is likely to be accessible and affordable, data presented in this report suggest co-payment dispensing costs are likely to present a barrier to ART for many PLWH. The additional financial burden from managing ART-related side effects and/or other chronic disease for PLWH is largely unknown but is also likely to be significant when considered alongside ART dispensing costs and potentially more likely to adversely affect older PLWH and/or those with more long-standing infections. To take steps towards better understanding the extent of the patient financial burden associated with ART and addressing financial barriers to ART commencement and adherence, routine collation of data on the individual cost of ART, including both ART-related medications and non-ART medications is needed. Targeted research linking these costs to individuals’ income and expenditure and prospectively to individuals’ health seeking behaviour would provide a more complete understanding of the potential for medication co-payments to undermine the health and community benefits of ART.

## RECOMMENDATIONS

1. The Victorian Government should consider tailored solutions for supporting ART dispensing to those in need, such as wholly funding or further subsidising ART dispensing for employed but low income PLWH, those with concession cards or those with more complex health needs

Substantial individual health, public health and HIV prevention benefit is accrued from the provision of ART to PLWH and removing cost as a barrier to essential medication is the founding premise of the PBS. Current mechanisms of concession cards and the Safety Net offer additional financial protection to the financially vulnerable. However, for those who are employed and not eligible for a concession card there is a gap in the protection currently offered. Those without a concession card (general patients), regardless of income, have the same co-payment amount and the same Safety Net threshold applied. Those with complex HIV treatment needs that necessitate multiple ART items or those with additional co-morbidities are also more likely to experience financial barriers to accessing medications.

2. The Victorian Government should consider implementing community ART dispensing models

Alternate models of dispensing highlighted previously in reviews of the s100 program. In other jurisdictions, community dispensing of ART is being trialled. The main benefit of community dispensing is a likely reduction in geographic barriers to accessing treatment and a reduction in individual travel costs. However, a secondary benefit may be that community pharmacies are able to individualise care, assist with prescription record keeping and help ensure patients fully utilise systems designed to protect them, such as the Safety Net. For this to be achieved adequate training of pharmacists and community health workers will need to occur so proper medication counselling and service provision will be provided to patients.

3. National systems should be considered to improve data quality for ART dispensing and costs for monitoring and benchmarking

Systematically collected data on individual level data on medications costs, and costs relative to income and competing costs among PLWH is needed to inform HIV clinical and public health policy. In addition to benchmarking indicators such as proportion of individuals accessing ART, prospective data on ART adherence and cost pressures would allow a robust assessment of the financial barriers to ART and help evaluate the impact of any changes in policy, practice or clinical guidelines in relation to the provision of ART.

Individual-level data on ART dispensing collected by pharmacies for the purpose of claiming to the PBS should be recognised as an important indicator for quantifying medication costs borne by PLWH. Current mechanisms used to report dispensing events and costs to the Commonwealth (i.e. online claiming by pharmacies to the Commonwealth) should be used systematically monitor these outcomes and information made available publically.

4. National systems should be considered to improve data quality for targeted analysis of financial burden and potential solutions

The current co-payments may be manageable for the majority of PLWH in Victoria and the free dispensing offered at MSHC is likely to relieve the financial burden of ART for PLWH and enhance treatment commencement and adherence. However, there is likely to be a proportion of HIV positive individuals not starting or adhering ART or experiencing significant associated financial hardship, because of co-payments for prescription medications. Additionally there are those not eligible for the PBS either not starting ART or using alternate access to ART, possibly at a large personal cost. There is currently a dearth of information on individual cost barriers to treatment.

We recommend the establishment of mechanisms within the current health and community care system to identify individuals experiencing financial cost barriers to commencing and adhering to HIV treatment. This mechanism could be efficiently applied by collecting and prospectively linking socio-demographic (including income and expenditure) and behavioural data (either periodically or as ongoing surveillance) from patients dispensed ART under the PBS as a part of Commonwealth reporting.

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## APPENDICES

**Appendix 1.** Requested PBS and RPBS items processed, Victoria, January 2011-November 2013, public and private\*

Generic product name and item code	Formulation	n
ABACAVIR		
5602W	abacavir 20 mg/mL oral liquid, 240 mL	10
5601T	abacavir 300 mg tablet, 60	751
6265R	<i>abacavir 20 mg/mL oral liquid, 240 mL</i>	0
6264Q	<i>abacavir 300 mg tablet, 60</i>	0
ABACAVIR + LAMIVUDINE		
5603X	abacavir 600 mg + lamivudine 300 mg tablet, 30	4613
6458X	<i>abacavir 600 mg + lamivudine 300 mg tablet, 30</i>	14
ABACAVIR + LAMIVUDINE + ZIDOVUDINE		
5604Y	abacavir 300 mg + lamivudine 150 mg + zidovudine 300 mg tablet, 60	291
6327B	<i>abacavir 300 mg + lamivudine 150 mg + zidovudine 300 mg tablet, 60</i>	0
ATAZANAVIR		
5615M	atazanavir 100 mg capsule, 60	0
5613K	atazanavir 150 mg capsule, 60	44
5614L	atazanavir 200 mg capsule, 60	545
5612J	atazanavir 300 mg capsule, 30	5963
9646Q	<i>atazanavir 100 mg capsule, 60</i>	0
6451M	<i>atazanavir 150 mg capsule, 60</i>	0
6452N	<i>atazanavir 200 mg capsule, 60</i>	0
9614B	<i>atazanavir 300 mg capsule, 30</i>	11
DARUNAVIR		
5653M	darunavir 150 mg tablet, 240	0
5821J	darunavir 400 mg tablet, 60	712

3392M	darunavir 600 mg tablet, 60	1787
2980W	darunavir 800 mg tablet, 30	0
9581G	<i>darunavir 150 mg tablet, 240</i>	<i>0</i>
5823L	<i>darunavir 400 mg tablet, 60</i>	<i>0</i>
5000E	<i>darunavir 600 mg tablet, 60</i>	<i>8</i>
10000H	<i>darunavir 800 mg tablet, 30</i>	<i>0</i>
DIDANOSINE		
5663C	didanosine 125 mg capsule: enteric, 30	0
5664D	didanosine 200 mg capsule: enteric, 30	8
5665E	didanosine 250 mg capsule: enteric, 30	36
5666F	didanosine 400 mg capsule: enteric, 30	125
6298L	<i>didanosine 125 mg capsule: enteric, 30</i>	<i>0</i>
6299M	<i>didanosine 200 mg capsule: enteric, 30</i>	<i>0</i>
6300N	<i>didanosine 250 mg capsule: enteric, 30</i>	<i>0</i>
6301P	<i>didanosine 400 mg capsule: enteric, 30</i>	<i>0</i>
EFAVIRENZ		
5708K	efavirenz 200 mg tablet, 90	39
5707J	efavirenz 30 mg/mL oral liquid, 180 mL	0
5706H	efavirenz 600 mg tablet, 30	1401
9618F	<i>efavirenz 200 mg tablet, 90</i>	<i>0</i>
6372J	<i>efavirenz 30 mg/mL oral liquid, 180 mL</i>	<i>0</i>
6356M	<i>efavirenz 600 mg tablet, 30</i>	<i>0</i>
EMTRICITABINE		
5709L	emtricitabine 200 mg capsule, 30	97
6137B	<i>emtricitabine 200 mg capsule, 30</i>	<i>0</i>
EMTRICITABINE + RILPIVIRINE + TENOFOVIR		
1491L	emtricitabine 200 mg + rilpivirine 25 mg + tenofovir disoproxil fumarate 300 mg tablet, 30	1521

1490K	<i>emtricitabine 200 mg + rilpivirine 25 mg + tenofovir disoproxil fumarate 300 mg tablet, 30</i>	5
ENFUVRTIDE		
5710M	enfuvirtide 90 mg injection [60 x 90 mg vials] (& inert substance diluent [60 x 1.1 mL vials], 1 pack	64
6455R	<i>enfuvirtide 90 mg injection [60 x 90 mg vials] (&amp; inert substance diluent [60 x 1.1 mL vials], 1 pack</i>	0
ETRAVIRINE		
5084N	etravirine 200 mg tablet, 60	826
5062K	<i>etravirine 200 mg tablet, 60</i>	5
FOSAMPRENAVIR		
5745J	fosamprenavir 50 mg/mL oral liquid, 225 mL	0
5746K	fosamprenavir 700 mg tablet, 60	264
6454Q	<i>fosamprenavir 50 mg/mL oral liquid, 225 mL</i>	0
6453P	<i>fosamprenavir 700 mg tablet, 60</i>	0
INDINAVIR		
5752R	indinavir 400 mg capsule, 180	64
6202K	<i>indinavir 400 mg capsule, 180</i>	0
LAMIVUDINE		
5773W	lamivudine 10 mg/mL oral liquid, 240 mL	39
5772T	lamivudine 150 mg tablet, 60	548
5774X	lamivudine 300 mg tablet, 30	588
5771R	lamivudine 5 mg/mL oral liquid, 240 mL	7
6194B	<i>lamivudine 10 mg/mL oral liquid, 240 mL</i>	0
6193Y	<i>lamivudine 150 mg tablet, 60</i>	1
6435Q	<i>lamivudine 300 mg tablet, 30</i>	0
6271C	<i>lamivudine 5 mg/mL oral liquid, 240 mL</i>	0
LAMIVUDINE + ZIDOVUDINE		

5775Y	lamivudine 150 mg + zidovudine 300 mg tablet, 60	1462
6234D	<i>lamivudine 150 mg + zidovudine 300 mg tablet, 60</i>	13
LOPINAVIR + RITONAVIR		
5790R	lopinavir 100 mg + ritonavir 25 mg tablet, 60	71
5791T	lopinavir 200 mg + ritonavir 50 mg tablet, 120	1692
5789Q	lopinavir 400 mg/5 mL + ritonavir 100 mg/5 mL oral liquid, 60 mL	21
9633B	<i>lopinavir 100 mg + ritonavir 25 mg tablet, 60</i>	0
6495W	<i>lopinavir 200 mg + ritonavir 50 mg tablet, 120</i>	0
6341R	<i>lopinavir 400 mg/5 mL + ritonavir 100 mg/5 mL oral liquid, 60 mL</i>	0
MARAVIROC		
5792W	maraviroc 150 mg tablet, 60	183
5793X	maraviroc 300 mg tablet, 60	57
9572T	<i>maraviroc 150 mg tablet, 60</i>	0
9573W	<i>maraviroc 300 mg tablet, 60</i>	0
NEVIRAPINE		
9507J	nevirapine 10 mg/mL oral liquid, 240 mL	5
9506H	nevirapine 200 mg tablet, 60	2085
1132N	nevirapine 400 mg tablet: modified release, 30 tablets	3485
9571R	<i>nevirapine 10 mg/mL oral liquid, 240 mL</i>	0
6215D	<i>nevirapine 200 mg tablet, 60</i>	26
1129K	<i>nevirapine 400 mg tablet: modified release, 30 tablets</i>	0
RALTEGRAVIR		
2760G	raltegravir 100 mg tablet: chewable, 60	0
2736B	raltegravir 25 mg tablet: chewable, 6	0



9523F	raltegravir 400 mg tablet, 60	4412
2754Y	<i>raltegravir 100 mg tablet: chewable, 60</i>	0
2743J	<i>raltegravir 25 mg tablet: chewable, 6</i>	0
9629T	<i>raltegravir 400 mg tablet, 60</i>	13
RILPIVIRINE		
1173R	rilpivirine 25 mg tablet, 30	62
1170N	<i>rilpivirine 25 mg tablet, 30</i>	0
RITONAVIR		
9660K	ritonavir 100 mg tablet, 30	7985
9542F	ritonavir 600 mg/7.5 mL oral liquid, 90 mL	15
9677H	<i>ritonavir 100 mg tablet, 30</i>	23
6494T	<i>ritonavir 600 mg/7.5 mL oral liquid, 90 mL</i>	0
SAQUINAVIR		
9545J	saquinavir 500 mg tablet, 120	123
6498B	<i>saquinavir 500 mg tablet, 120</i>	0
STAVUDINE		
9553T	stavudine 20 mg capsule, 60	0
9554W	stavudine 30 mg capsule, 60	23
6186N	<i>stavudine 20 mg capsule, 60</i>	0
6189R	<i>stavudine 30 mg capsule, 60</i>	0
TENOFIVIR		
9563H	tenofovir disoproxil fumarate 300 mg tablet, 30	8245
6358P	<i>tenofovir disoproxil fumarate 300 mg tablet, 30</i>	3346
TENOFIVIR + EMTRICITABINE		
9564J	tenofovir disoproxil fumarate 300 mg + emtricitabine 200 mg tablet, 30	10326
6468K	<i>tenofovir disoproxil fumarate 300 mg + emtricitabine 200 mg tablet, 30</i>	24
TENOFIVIR + EMTRICITABINE + EFAVIRENZ		

9565K	tenofovir disoproxil fumarate 300 mg + emtricitabine 200 mg + efavirenz 600 mg tablet, 30	7526
9650X	<i>tenofovir disoproxil fumarate 300 mg + emtricitabine 200 mg + efavirenz 600 mg tablet, 30</i>	36
TIPRANA VIR		
9567M	tipranavir 250 mg capsule, 120	4
9610T	<i>tipranavir 250 mg capsule, 120</i>	0
ZIDOVUDINE		
9651Y	zidovudine 100 mg capsule, 100	51
9652B	zidovudine 250 mg capsule, 40	158
9570Q	zidovudine 50 mg/5 mL oral liquid, 200 mL	16
6153W	<i>zidovudine 100 mg capsule, 100</i>	0
6154X	<i>zidovudine 250 mg capsule, 40</i>	0
6155Y	<i>zidovudine 50 mg/5 mL oral liquid, 200 mL</i>	0
<b>Total - public</b>		<b>68350</b>
<b>Total - private</b>		<b>3525</b>
<b>Total – public and private</b>		<b>71875</b>

Produced from PBS item reports<sup>80</sup>

\*Private in this usage means a telephone authority from a private hospital

Excludes PEP as not processed through Medicare

**Appendix 2.** Maximum quantities and agreed dispensing price for PBS ARVs, Public Hospital, 2013

Generic Medicine Name	Strength	Dosage form	Maximum quantity	Agreed dispense price for max. quantity (\$)
Abacavir	300mg	tablets	120 (2 packs of 60)	564
Abacavir	20mg/ml	oral liquid	8 (8x240ml bottles)	657.12
Abacavir-Lamivudine	600mg-300mg	tablets	60 (2 packs of 30)	1037.78
Abacavir-Lamivudine-Zidovudine	300mg-150mg-300mg	tablets	120 (2 packs of 60)	1614.66
Atazanavir	100mg	tablets	120 (2 packs of 60)	695.88
Atazanavir	150mg	tablets	120 (2 packs of 60)	1043.82
Atazanavir	200mg	tablets	120 (2 packs of 60)	1391.76
Atazanavir	300mg	tablets	60 (2 packs of 30)	1043.82
Darunavir	150mg	tablets	240 (1 pack)	1048.71
Darunavir	400mg	tablets	120 (2 packs of 60)	1398.28
Darunavir	600mg	tablets	120 (2 packs of 60)	2097.42
Darunavir	800mg	tablets	60 (2 packs of 30)	1398.28
Efavirenz	200mg	tablets	180 (2 packs of 90)	543.16
Efavirenz	30mg/ml	oral liquid	7 (7 bottles of 180ml)	570.29
Efavirenz	600mg	tablets	60 (2 packs of 30)	543.16
Emtricitabine	200mg	tablets	60 (2 packs of 30)	564
Emtricitabine-Rilpiverine-Tenofovir	200mg-25mg-300mg	tablets	60 (2 packs of 30)	2073.36
Emtricitabine-Tenofovir	200mg-300mg	tablets	60 (2 packs of 30)	1530.2
Efavirenz-Emtricitabine-Tenofovir	600mg-200mg-300mg	tablets	60 (2 packs of 30)	2073.36
Etravirine	200mg	tablets	120 (2 packs of 60)	1233
Fosamprenavir	700mg	tablets	120 (2 packs of 60)	758.32
Fosamprenavir	50mg/ml	oral liquid	8 (8 bottles 225ml)	812.48
Lamivudine	100mg	tablets	56 (2 packs of 28)	250.94
Lamivudine	150mg	tablets	120 (2 packs of 60)	473.78
Lamivudine	300mg	tablets	60 (2 packs of 30)	473.78
Lamivudine	10mg/ml	oral liquid	8 (8 bottles of 240ml)	691.84
Lamivudine-Zidovudine	150mg-300mg	tablets	120 (2 packs of 60)	968.34

Lopinavir-Ritonavir	100mg-25mg	tablets	120 (2 packs of 60)	342.5
Lopinavir-Ritonavir	200mg-50mg	tablets	240 (2 packs of 120)	1370
Lopinavir-Ritonavir	400mg/5ml-100mg/5ml	oral liquid	10 (10 bottles of 60ml)	1290
Maraviroc	150mg	tablets	120 (2 packs of 60)	1835.4
Maraviroc	300mg	tablets	120 (2 packs of 60)	1835.4
Nevirapine	200mg	tablets	120 (2 packs of 60)	456.26
Nevirapine	400mg	modified release tablets	60 (2 packs of 30)	456.26
Nevirapine	10mg/ml	oral liquid	10 (10 bottles of 240ml)	1350
Raltegravir	25mg	chewable tablets	360 (6 packs of 60)	506.28
Raltegravir	100mg	chewable tablets	360 (6 packs of 60)	2025
Raltegravir	400mg	tablets	120 (2 packs of 60)	1331.1
Rilpivirine	25mg	tablets	60 (2 packs of 30)	543.16
Ritonavir	100mg	tablets	720 (24 packs of 30)	982.8
Ritonavir	600mg/7.5ml	oral liquid	10 (10 bottles 90ml)	910
Saquinavir	500mg	tablets	240 (2 packs of 120)	1011.12
Tenofovir	300mg	tablets	60 (2 packs of 30)	966.2
Tipranavir	250mg	tablets	240 (2 packs of 120)	2142
Zidovudine	100mg	tablets	400 (4 packs of 100)	821.84
Zidovudine	250mg	capsule	240 (6 packs of 40)	1232.76
Zidovudine	50mg/5ml	oral liquid	15 (15 bottles 200ml)	673.2
Efuvirtide	90mg	injection	120 vials (2x60 vials)	4426

**Appendix 3. Therapeutic guidelines for treatment of HIV**

Nucleoside Reverse Transcriptase Inhibitors (NRTIs)	Non Nucleotide Reverse Transcriptase Inhibitor
Emtricitabine (FTC) + Tenofovir	Efarvirenz
OR	OR
Lamivudine(3TC) + Zidovudine (AZT)	Nevirapine
OR	OR
Lamivudine plus Tenofovir	Rilpivirine
OR	Protease Inhibitor
Abacavir plus emtricitabine	Atazanavir (boosted with Ritonavir)
OR	OR
Abacavir plus lamivudine	Lopinavir
OR	OR
Didanosine (ddl) plus emtricitabine	Fosamprenavir
OR	OR
Didanosine plus lamivudine	Indinavir
	OR
	Nelfinavir
	OR
	Saquinavir
	OR
	Darunavir
	OR
	Tipranavir
	OR
	Ritonavir
	Alternative treatments
	Raltegravir
	OR
	Marivaroc
	OR
	Efuvirtide

**Appendix 4.** Cumulative concession card holders reaching Safety Net threshold (\$354.00) and proportion receiving Safety Net card in 2013, Alfred and Caulfield campuses

