

Report to: **SINGLE COMMISSIONING BOARD**

Date: 1 November 2016

Officer of Single Commissioning Board: Angela Hardman, Director of Public Health

Subject: **HIV PREVENTION AND SUPPORT SERVICES**

Report Summary: The purpose of this report is to seek agreement to continue the financial commitment to HIV Prevention and Support services until 31 March 2019. Current services are commissioned under joint arrangements for Greater Manchester Authorities by Manchester City Council. This request relates to the services delivered by the following providers:

- Lesbian Gay Bisexual and Transgender Foundation (LGBTF)
- George House Trust (GHT)
- BHA Equalities (BHA)

The report also details the proposed future commissioning intentions for HIV Prevention and Support services and continued collaborative commissioning arrangements with the other areas in Greater Manchester (GM). The proposal is to consolidate the existing provision across Greater Manchester into a more streamlined service(s) that is responsive to the needs of the most at risk of HIV. Salford City Council is proposing to be the lead commissioner of these services on behalf of Greater Manchester Authorities with support from the Greater Manchester Sexual Health Network (GMSHN).

The economy currently invests £22,560 per annum in Sexual Health HIV prevention across these three voluntary sector providers. This is the smallest amount invested by any Local Authority across Greater Manchester. Protecting this funding is important as it both funds the delivery of services to some of our most vulnerable and high risk population in terms of sexual health needs and gives us access to the wider Manchester City region investment in these services. The continued commitment to this level of funding will maintain the economies of scale we receive by collaboratively commissioning across GM

The current lead commissioner, Manchester City Council, has authority to extend current contracts until 31 March 2019 with contracts due to expire on 31 March 2017. They are seeking agreement from Greater Manchester partners to continue the current arrangements until a procurement exercise can be conducted to implement a new service. It is proposed to extend current services by up to six months until 30 September 2017 or until a new service is in place if sooner.

Salford (as the proposed new lead commissioner) intend to manage the tender process and award a new service within the first three months of this extension (by 1 July 2017). The six month extension will offer some degree of flexibility in the timescales which may be necessary when agreeing the service model, financial investments and ensuring the outcomes of public consultation and impacts to protected groups are carefully

considered across GM.

This continued commitment and proposed new service will align these services with the commissioning cycle of core clinical sexual and reproductive health services across Greater Manchester and the Greater Manchester Chlamydia screening service. It is envisaged all sexual health services could be re-rendered collectively with a new Greater Manchester service offer implemented from 1 April 2019.

Recommendations:

The Single Commissioning Board are recommended to :

1. Approve the extension of the existing contractual arrangements for a maximum period of 6 months to 30 September 2017 from the current contract expiry date of 31 March 2017 whilst a new Greater Manchester collaborative service offer is commissioned.
2. Approve the continued investment of £22,560 per annum (£11,280 for the 6 month maximum period as detailed in recommendation 1) towards the existing Greater Manchester collaborative service offer. The investment will be financed via the Public Health directorate revenue budget which is within the Integrated Commissioning Fund Section 75 allocation.
3. Approve in principle the continued participation within the new Greater Manchester collaborative service contract which will then be commissioned by Salford to the period ending 31 March 2019 at a continued annual investment of £22,560. The investment will continue to be financed via the Public Health directorate revenue budget which is within the Integrated Commissioning Fund Section 75 allocation. A further report will be presented to the Single Commissioning Board during 2017 in advance of the commencement of the new Greater Manchester service contract.
4. Note that the continued participation in principle to the Greater Manchester collaborative arrangements (to 31 March 2019) is approved subject to a further detailed review of commissioning intentions beyond this date.
5. Note that participation within a Greater Manchester combined sexual health service offer from 1 April 2019 including the level of associated investment, will be subject to a separate decision by Single Commissioning Board members at a later date.

Financial Implications:

***(Authorised by the statutory
Section 151 Officer & Chief
Finance Officer)***

The existing annual contribution of £22,560 towards HIV prevention and support services is financed via the Public Health directorate revenue budget, which is within the Integrated Commissioning Fund Section 75 allocation.

The report recommends continuation of this investment for a six month (maximum) extension to the existing contractual arrangements during 2017/2018 whilst a new Greater Manchester service offer is implemented by Salford. Appendix two provides supplementary financial considerations including the related estimated avoidance cost to the economy of having an effective

HIV prevention and support service in place.

It should be noted that the annual investment is not expected to increase once the new Greater Manchester service is implemented via Salford to the period ending 31 March 2019.

Continued participation within a new sexual health service offer from 1 April 2019 including the level of annual investment will be subject to a separate decision by the Single Commissioning Board at a later date.

Legal Implications:

(Authorised by the Borough Solicitor)

Should the Board agree to the recommendations the Chief Finance Officer/Executive Director of Governance, Resources and Pensions agree to the waiver of In compliance with the Council's Procurement Standing Orders to enable the contract extension.

How do proposals align with Health & Wellbeing Strategy?

The proposals align with the Living Well and Ageing Well programmes for action

How do proposals align with Locality Plan?

The service is consistent with the following priority transformation programmes:

- Healthy Lives (early intervention and prevention)
- Enabling self-care

How do proposals align with the Commissioning Strategy?

The service contributes to the Commissioning Strategy by:

- Empowering citizens and communities
- Commission for the 'whole person'
- Create a proactive and holistic population health system
- Target commissioning resources effectively

Recommendations / views of the Professional Reference Group:

As this report does not require a clinical view it has not been reviewed by PRG.

Public and Patient Implications:

The report requests commitment to continue existing funding for these services. As part of the procurement exercise for replacement services there will be a GM wide consultation and assessment of any disproportionate impact to the protected groups under the Equality Act 2010

Quality Implications:

Tameside Metropolitan Borough Council is subject to the duty of Best Value under the Local Government Act 1999, which requires it to achieve continuous improvement in the delivery of its functions, having regard to a combination of economy, efficiency and effectiveness. Any procurement exercise will be awarded on the basis of the most economically advantageous tender that balances the cost and quality advantages of tender submissions.

How do the proposals help to reduce health inequalities?

The HIV prevention support services target our most vulnerable and high risk population in terms of sexual health needs.

Late diagnosis is the most important predictor of HIV-related morbidity and short-term mortality. The Public Health Outcomes Framework (POHOF) includes indicator 3.04 HIV Late Diagnosis to assess progress in achieving earlier HIV diagnoses. The latest

available data from 2012-2014 Tameside had a rate of 40% compared to a regional value of 45.8% and a national value of 42.2%.

What are the Equality and Diversity implications?

As part of the procurement exercise for replacement services the lead commissioner, Salford, assisted by the Greater Manchester Sexual Health Network will conduct a GM wide consultation and assessment of any disproportionate impact to the protected groups under the Equality Act 2010

What are the safeguarding implications?

None

What are the Information Governance implications? Has a privacy impact assessment been conducted?

Information governance is a core element of all contracts. The necessary protocols for the safe transfer and keeping of confidential information are maintained at all times by both purchaser and provider.

Risk Management:

The proposed procurement exercise will be conducted by Salford Council using a fully compliant OJEU process to procure any contracts.

Salford propos to undertake a GM wide consultation and equality impact assessment.

Access to Information :

The background papers relating to this report can be inspected by contacting

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1 SUMMARY

- 1.1 The purpose of this report is to seek agreement to continue our commitment to existing contracts for HIV Prevention and Support services, commissioned under joint arrangements for Greater Manchester Authorities by Manchester City Council, for an additional six months until 30 September 2017. This request relates to the services delivered by the following providers which are discussed in more detail within the paper:
 - Lesbian Gay Bisexual and Transgender Foundation (LGBTF)
 - George House Trust (GHT)
 - BHA Equalities (BHA)
- 1.2 The paper also details the proposed future commissioning intentions for HIV Prevention and Support services and continued collaborative commissioning arrangements with the other areas in Greater Manchester. The proposal is to consolidate the existing provision across Greater Manchester into a more streamlined service(s) that is responsive to the needs of the most at risk of HIV. Salford City Council is proposing to be the lead commissioner of these services on behalf of Greater Manchester Authorities with support from the Greater Manchester Sexual Health Network (GMSHN).
- 1.3 Tameside Local Authority invests a total of £22,560 per annum in Sexual Health HIV prevention split between these three voluntary sector providers. This is the smallest amount invested by any Local Authority across Greater Manchester. Protecting this funding is important as it both funds the delivery of services to some of our most vulnerable and high risk population in terms of sexual health needs and gives us access to the wider Manchester City region investment in these services. By participating we are able to influence and benefit from GM initiatives such as the Public Health England funded pilot of HIV Point of Care Testing being delivered by LGBTF and BHA in Manchester and Salford.
- 1.4 The current lead commissioner, Manchester City Council, has authority to extend these contracts until 31 March 2019 with contracts currently due to expire on 31 March 2017. They are seeking agreement from Greater Manchester partners to continue the current arrangements until 30 September 2017. This extension request will maintain the economies of scale we receive by collaboratively commissioning across GM whilst also ensuring time for an effective procurement process for these services, which will include finalising and agreeing the following across the city region:
 - a new service specification,
 - the allocation of resources from each GM authority,
 - to undertake a GM-wide consultation on the re-tendering of these services,
 - the assessment of disproportionate impact (if any) to the protected groups under the Equality Act 2010.
- 1.5 It is Salford's intention to manage the tender process and award a new service within the first three months of this extension (by 1 July 2017). The six month extension will offer some degree of flexibility in the timescales which may be necessary when agreeing the service model, financial investments and ensuring the outcomes of public consultation and impacts to protected groups are carefully considered across GM.
- 1.6 This continued commitment and proposed new service will align these services with the commissioning cycle of core clinical sexual and reproductive health services across Greater Manchester and the Greater Manchester Chlamydia screening service. This means all sexual health services could be re-tendered collectively and commence across Greater Manchester in 2019.

2 HIV PREVENTION AND SUPPORT SERVICES

- 2.1 Following the Health and Social Care Act 2012 and the transfer of Public Health functions, the Local Authority adopted responsibility for the commissioning of some of the sexual health services for their residents. Prior to the transfer of these sexual health commissioning responsibilities there had been an established tradition of collaborative arrangements for some of these services across Greater Manchester.
- 2.2 Manchester Primary Care NHS Trust held several collaborative contracts on behalf of the other areas of Greater Manchester which included some sexual health contracts. Following the transfer of responsibilities, these collaborative contracts were transferred to Manchester City Council (MCC) as agreed by the Directors of Public Health in the 10 local authority areas.
- 2.3 These contracts include provision of several sexual health promotion and HIV prevention and support services aimed at specific at risk groups. The details of the individual contracts are discussed below in Section 3.
- 2.4 In 2015, Manchester City Council agreed an exception to their Contractual Standing Orders for these sexual health contracts so they could be extended up to 2019 if desired, which has previously allowed for these services to be extended annually. Contracts currently have an end date of 31 March 2017.
- 2.5 The GM sexual health commissioners, coordinated through the Greater Manchester Sexual Health Network, are proposing to redesign these services and procure a new service(s) in a joint commissioning arrangement led by Salford city council.
- 2.6 Discussions across GM commissioners are still ongoing and there is still no agreement from all authorities on the indicative budget for this tender. As such this has delayed the start of any formal procurement process as we are collectively unable to guarantee the budget for this service and therefore what service model could be offered to the market. Commitment is therefore sought to continue the current level of funding (£22,560 per annum). The funding for this service is within the Public Health directorate of the Integrated Commissioning Fund Section 75 allocation.
- 2.7 Tameside contributes minimal funding to these city region services compared to Manchester and Salford. Our continued investment will ensure we continue to benefit from the wider investment of other GM Authorities and economies of scale we receive by collaboratively commissioning across GM whilst also ensuring a thorough and effective tender process for future services.
- 2.8 The GM commissioners are mindful of the impact of redesigning these services may have on the populations it serves; the most at risk populations for acquiring or transmitting HIV such as gay and bisexual men, black African men and women and sex workers. This would require a careful and considered consultation with the public and the stakeholder and providers for these groups. This may also include an Equality/Community Impact Assessment to consider if there is any disproportionate impact to the protected groups within the Equality Act 2010. Any thorough consultation and impact assessment requires a clear understanding of the service model which is currently hindered by the finalising of resources from all GM authorities. This process will be supported by the Greater Manchester Sexual Health Network and Greater Manchester commissioners.
- 2.9 To allow sufficient time to finalise GM budgets and ensure an effective consultation and Equality/Community Impact Assessment is completed, Manchester City Council (as the host

authority of this contract) has requested the other GM partners extend their commitment to the existing contracts for an additional six months until 30 September 2017.

2.10 This report therefore seeks approval to support Manchester City Council's proposal to extend the HIV Prevention and Support services for an additional six months. This request for an extension specifically relates to the services delivered by the following providers, which are discussed in more detail in Section 3 of this paper:

- The Lesbian Gay Bisexual and Transgender Foundation
- The George House Trust
- BHA Equalities

2.11 Local data on HIV is given in **Appendix one**.

3 CURRENT SERVICES

3.1 The HIV prevention services which this paper refers to are summarised below.

Lesbian, Gay, Bisexual and Transgender Foundation (LGBTF)

3.2 LGBTF provide a sexual health promotion and HIV prevention service, specifically targeting a key at risk group for sexual ill health, men who have sex with men (MSM). This is a collaborative service with all the Greater Manchester Local Authorities including Tameside.

3.3 Most of the activity delivered is either Manchester centric or delivered through social media where geography is less of an issue. There is some targeted activity delivered in Tameside such as a bus tour and outreach within New Charter sessions and support for local pride events.

3.4 LGBTF also offer

- Distribution of safe sex packs
- Attendance at community events
- In reach into saunas, and other sex on premises venues
- College based promotion of sexual health messages
- Provision of training
- Outreach rapid HIV testing
- Support to age UK
- Support to planning pride events

3.5 The contract is held by Manchester City Council (MCC) and currently ends 31st March 2017. MCC are able to extend the contact until 31 March 2019.

3.6 Annual Contribution from Tameside is £9560

George House Trust (GHT)

3.7 George House Trust (GHT) provide a sexual health promotion and HIV prevention service, specifically aiming to reduce onward transmission of HIV by working with those already living with HIV. This is a collaborative service with other Greater Manchester Local Authorities including Tameside.

3.8 GHT is commissioned to deliver HIV support services across Greater Manchester. There are 69 Tameside residents accessing support from the GHT (24 female, 45 male), with the majority aged 36 to 50 although the service is used across the age range. The majority of

individuals accessing the service in Tameside are white British (38), with the second largest group being black African (22).

- 3.9 GHT offer a range of support from relationship advice, disclosure, emotional wellbeing, use of medication and treatment. Tameside service users accessed a range of advice, with the most common topic being financial advice.
- 3.10 The majority of work delivered to Tameside residents is delivered outside of Tameside mainly at their base in central Manchester.
- 3.11 The contract is held by Manchester City Council (MCC) and currently ends 31st March 2017. MCC are able to extend the contact until 31 March 2019.
- 3.12 Annual Contribution from Tameside is £7000

BHA Equalities

- 3.13 BHA Equalities work with women and men at high risk of sexual ill-health to reduce the incidence of sexually transmitted infections including HIV among women and men from black African communities, black Caribbean communities and Eastern European countries living in Greater Manchester. The programme also contributes to raising awareness of sexual health issues among the general population and promoting good sexual health and wellbeing.
- 3.14 BHA provide sexual health information, HIV prevention and support to individuals, families and communities across Greater Manchester, working within communities to encourage individuals to protect themselves from infection.
- 3.15 Recently community engagement in Tameside has centred around Ashton Market, with a particular focus on delivery on a Sunday to engage with individuals who would not otherwise engage in community events. There is also ongoing work developing a social media presence through Twitter and Facebook.
- 3.16 BHA records ethnicity, sexual orientation and age of clients engaging in one to one contact. The majority of Tameside contacts reported are with individuals describing themselves as black African, the most common sexuality reported was heterosexual and most people in contact with the service were aged over 30.
- 3.17 BHA report that they have found engaging with some BME groups in Tameside challenging and this is an area of work they will continue to focus on.
- 3.18 The contract is held by Manchester City Council (MCC) and currently ends 31st March 2017. MCC are able to extend the contact until 31 March 2019.
- 3.19 Annual Contribution from Tameside is £6,000

4 PROPOSAL FOR FUTRE COLLABORATIVE COMMISSIONING

- 4.1 The GM sexual health commissioners, coordinated through the Greater Manchester Sexual Health Network, are proposing to procure a new HIV prevention service with a lead provider model in a joint commissioning arrangement led by Salford city council.
- 4.2 As a key member of the Greater Manchester Sexual Health Network and an area with high prevalence of HIV (the third highest in the England outside of Greater London), Salford City Council is offering to be the lead commissioner and to manage the procurement process on behalf of Greater Manchester. This lead commissioner role will be supported by the Greater Manchester Sexual Health Network and Greater Manchester commissioners who have been working collaboratively on Public Health sexual health services for over 10 years.

- 4.3 An open tender exercise will be undertaken with expressions of interest invited through the Official Journal of the European Union and advertised on The Chest.
- 4.4 These collaborative Greater Manchester services deliver economies of scale benefits for all Greater Manchester authorities with a specific focus on working with key at risk groups. This Greater Manchester solution also recognises that people do not necessarily choose their sexual partners or to access services within the boundaries of their own area of residence.
- 4.5 This collaborative procurement also supports the Devolution Manchester agenda by demonstrating the effective joint commissioning arrangements that are possible across the city region.
- 4.6 All areas of Greater Manchester have carried out tender exercises for their core clinical sexual and reproductive health services in the last 12 months which includes the specialist genitourinary medicine, contraceptive and sexual health services along with psychosexual counselling. All these core services across Greater Manchester are now commissioned up to 2019. The continued commitment and proposed joint commissioning of new HIV prevention services will align these services with the commissioning cycle of core clinical sexual and reproductive health services across Greater Manchester and the Greater Manchester Chlamydia screening service. The alignment of all sexual health service commissioning cycles will allow for a future GM wide re-tendering of all sexual health services (both clinical and non-clinical) in one exercise in 2019.

5 PROCUREMENT STANDING ORDER SEEKING TO WAIVE / AUTHORISATION TO PROCEED

- 5.1 Authorisation is sought to proceed with collaborative arrangements led by Salford as lead commissioner

6 FINANCIAL ENVELOPE FOR NEW SERVICE

- 6.1 Tameside's contribution to current expenditure on HIV prevention services in Greater Manchester is £22,560 per annum. The major funders of these services in Greater Manchester are Manchester and Salford which reflects their much higher diagnosed HIV rates and specific at risk group issues. Contributions from the remaining 8 authorities are considerably lower with Tameside's being the lowest currently. The proposed levels of funding of other local authorities are currently unknown as they are all undergoing governance to approve budget allocations.
- 6.2 The funding for this service is within the Public Health directorate revenue budget of the Integrated Commissioning Fund Section 75 allocation.
- 6.3 **Appendix two** provides supplementary financial considerations including the related estimated avoidance cost to the economy of having an effective HIV prevention and support service in place.

7 RECOMMENDATIONS

- 7.1 As stated at the front of this report.

APPENDIX ONE

1 LOCAL HIV INFORMATION

- 1.1 Much of the following information comes from the Sexual and Reproductive Health profiles produced by Public Health England and the Tameside Local Authority HIV, sexual and reproductive health epidemiology report (LASER): 2014 produced by Public Health England in November 2015. This information is supplemented with data from local services for the 12 month period to 30 June 2016.
- 1.2 Late diagnosis is the most important predictor of HIV-related morbidity and short-term mortality. The Public Health Outcomes Framework (PHOF) includes indicator 3.04 HIV Late Diagnosis to assess progress in achieving earlier HIV diagnoses. The latest available data from 2012-2014 Tameside had a rate of 40% compared to a regional value of 45.8% and a national value of 42.2%.
- 1.3 Tameside's diagnosed HIV prevalence rate per 1000 age 15-59 is 1.49% (194 cases). In local authorities with a diagnosed HIV prevalence greater than 2 per 1,000, implementation of routine HIV testing for all general medical admissions and for all new registrants in primary care is recommended.
- 1.4 In 2014, among genitourinary medicine (GUM) clinic patients from Tameside who were eligible to be tested for HIV, 41.8% were tested (compared to 68.9% in England) and an HIV test was offered at 83.8% of eligible attendances at GUM clinics among residents of Tameside and, where offered, an HIV test was done in 38.6% of these attendances. More recent data from the local service shows that of the patients identified as high risk 81% of those offered a test accepted it.
- 1.5 In 2014, nationally, an HIV test was offered at 80.1% of eligible attendances at GUM clinics and, where offered, an HIV test was done in 77.5% of these attendances. In 2014, among GUM clinic patients from Tameside who were eligible to be tested for HIV, 41.8% were tested. Nationally, 68.9% of GUM clinic patients who were eligible to be tested for HIV were tested.
- 1.6 A quarter of people estimated to be living with HIV are unaware of their infection in the UK and remain at risk of passing it on if having sex without condoms. Reductions in undiagnosed infection can be achieved through increasing testing coverage in STI clinics, the introduction and consolidation of HIV testing in a variety of different medical services, in addition to further development of community testing, including self-sampling/self-testing.
- 1.7 The number of people living with diagnosed HIV infection has continued to increase in England, while the number of new HIV diagnosis remains stable at around 6,000 per year in recent years. People diagnosed with HIV late have a ten-fold increased risk of death in the year following diagnosis compared to those diagnosed promptly.
- 1.8 Once diagnosed, the quality of HIV care provided by clinical services in England is high with limited variations by sex, ethnicity and exposure groups. Consequently, people living with HIV can expect a near-normal life span if they are diagnosed and treated promptly. Early treatment has been recommended by national and international treatment guidelines, not only for the benefits of diagnosed people but also for the prevention of onward transmission.
- 1.9 In 2014, 212 adult residents (aged 15 years and older) in Tameside received HIV-related care: 150 (number rounded up to nearest 5) men and 65 (number rounded up to nearest 5) women. Among these, 60.9% were white, 28.3% black African and 2.2% black Caribbean.

With regards to exposure, 50.0% probably acquired their infection through sex between men and 43.2% through sex between men and women

- 1.10 Service data shows that currently 91 people are receiving HIV treatment and Care in the local Tameside service. This compares to 67 in the same period in 2014. HIV Treatment and care is commissioned by NHS England but delivered across Greater Manchester with many patients electing to receive care from Manchester services.
- 1.11 Where residence information was available in 2014, 13 adult residents of Tameside were newly diagnosed with HIV. The rate of new HIV diagnosis per 100,000 of population among people aged 15 or above in Tameside was 7.22, compared to 12.34 in England.

APPENDIX TWO

2 FINANCIAL CONSIDERATIONS

- 2.1 The main aims of the HIV Prevention Support Services are to -
- support people living with HIV
 - prevent onward transmission of HIV
 - to improve testing rates so that we detect earlier and
 - to improve testing rates so that we detect more
- 2.2 Supporting people with HIV to manage their HIV infection as a long-term condition, avoid onward transmission and improving detection rates and early detection will result in cost avoidance.
- 2.3 Poor sexual and reproductive health and ongoing transmission rates of HIV have major impacts on population mortality, morbidity and wider wellbeing, and result in significant costs for health and social care budgets.
- 2.4 There is a strong association between poor sexual and reproductive health and other risk behaviours. Sexual and reproductive ill health is concentrated in many vulnerable and marginalised communities, and improving sexual and reproductive health and HIV outcomes will address these major health inequalities.
- 2.5 People living with HIV who are diagnosed late have a tenfold increased risk of death in the year following diagnosis compared to those diagnosed promptly.
- 2.6 NHS's expenditure on infectious diseases has an average annual spend of £13,900 for each person accessing HIV services¹
- 2.7 Each new case of HIV infection is estimated to incur between £280,000 and £360,000 in lifetime treatment costs.²
- 2.8 Those diagnosed late incur twice the direct medical costs for HIV care in the first year after diagnosis compared with those diagnosed early.³
- 2.9 This is largely due to increased inpatient hospital care costs, which are 15 times higher for those diagnosed late. Subsequent HIV care costs, for those diagnosed late, remain 50% higher in the years following diagnosis due to increased rates of hospital admission and increased costs of providing treatment.⁴

¹ 1 - HC Deb 16 June 2014 200862W <http://www.parliament.uk/business/publications/written-questions-answers-statements/written-question/Commons/2014-06-16/200862/>

² 2 - Health Protection Agency. HIV in the United Kingdom: 2012 Report. London: Health Protection Services, Colindale. November 2012.
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/335452/HIV_annual_report_2012.pdf

³ Beck EJ, Mandalia S, Sangha R, Sharott P, Youle M, Baily G, et al. The cost-effectiveness of early access to HIV services and starting cART in the UK 1996-2008. PLoS One. 2011;6(12):1–9.

⁴ 4 Krentz, H.B. & Gill, M.J. The Direct Medical Costs of Late Presentation (<350/mm³) of HIV Infection over a 15-Year Period. AIDS Research and Treatment. AIDS Res Treat. 2012; 2012:757135.

