

Government vs. NGO influence within online health communication

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Abstract

Australian NGOs and health departments are key stakeholders within HIV/AIDS health information initiatives. Effective supply of and user interaction with authoritative HIV/AIDS information by these stakeholders is critical to engage people living with HIV/AIDS (PLWHA) with test-and-treat programs, as well as to retain PLWHA within lifelong healthcare programs in order to achieve and maintain full viral suppression. We conducted two webcrawls (28 February and 26 August 2016, full hyperlink network ~25,500 entities) to ascertain the relative influence of online public-facing HIV/AIDS information resources. It was hypothesised, first, that Australian government health departments aim to serve as sites of authoritative HIV information – for example, testing, safer sex and/or pre-exposure prophylaxis) and, second, that Australian NGO/NFP/charity HIV organisation sites fulfil a recommender function by providing a medium between their audience (e.g. gay men, sex workers) and authoritative HIV-related health information. This soft hypothesis was not upheld following comparative analysis of the webcrawl data. No Australian government site was highly ranked for either inbound (authoritative) or outbound (recommender) influence. The webcrawl data indicated that NGOs and charities operating at a national level as well as state-based NGOs from the larger states of New South Wales, Queensland and Victoria are most highly ranked for influence. This methods-oriented article is aimed at quantitative and mixed methods communication researchers. Its findings are relevant to health communication specialists in both government and non-government organisations.

Keywords: influence; HIV/AIDS; NGOs; quantitative methods; webcrawl

Introduction

This article describes the use of webcrawler software to ascertain the relative influence of 37 public-facing websites, including those of both government and non-government organisations. Influence is quantified through two sets of metrics: first, inbound hyperlink influence metrics are used to identify those sites that are influential, based on who is linking to them; and second, outbound hyperlink influence metrics are used to identify those sites that are influential based on who they link to. These measurement systems are explained more fully below. This methods-oriented article is aimed at both quantitative and mixed-methods communication researchers. Its use of a more advanced

webcrawl method may be of interest to those communication researchers who are currently using web and/or social network analytics applications within their research designs. Alongside quantitative communication researchers, our findings are relevant to health communication specialists in both government and non-government organisations.

It is non-controversial to suggest that the wide availability of online English-language health resources add substantially to 'the complexity and evolving dynamics of health communication' (Ruben, 2016, p. 7). For example, in a 2011–12 study of the general use of health-related websites by US consumers (based on Health Information National Trends survey data, n=3959), respondents reported using commercial websites (72%), search engines (12%), academically affiliated sites (11%) and government-sponsored websites (5%) (LaValley, Kiviniemi & Gage-Bouchard, 2017). Yet caution must be exercised when referring to earlier studies conducted when the global market penetration of mobile and social media was comparatively low. The disciplinary perspective of communication and media can allow for a critical assessment of the barriers to online health information provision – for example, a qualitative interview-based study (n=17) of adult consumers in Western Australia with a chronic condition who reported using internet health information identified both limited eHealth literacy and the inconsistency of information between different online sources as barriers to online health-seeking behaviours (Lee et al., 2014). A recent United Kingdom–Australia analytics-based study of online health resources makes the serious accusation that 'almost all of the online material reviewed is written in language too complex for the majority of the general public to comprehend, let alone act on' (Dahl & Eagle, 2016, p. 1). Yet, despite some of the valid barriers recognised by these studies, the use of online/mobile/social information, networks and resources to support healthcare outcomes for HIV/AIDS and other sexually transmitted infections is an established strategy, which is likely to grow in order to address the challenge of providing lifelong clinical support to patients. Only by being aware of the most influential online resources can effective communication and clinical strategies be properly planned, delivered and evaluated. For example, a US-based survey study in 2013 (n=1494) found that internet use for health care engagement purposes by HIV-positive social media users was associated with better self-reported virologic and adherence outcomes (Saberri & Johnson, 2015).

To date, little specific research has been conducted on the influence of online HIV/AIDS information sources in Australia, including both those entities that recommend resources and support to users, such as NGOs, and those that produce authoritative resources, such as health departments and research centres. In the sphere of health communication, national and sub-national Health Departments and NGOs in Australia often collaborate on information initiatives to the extent that some NGOs may receive public funding to support specific activities and/or programs alongside their other revenue streams. The effectiveness of this collaboration can be critical within the sphere of sexual health communication, especially with regard to a sexually transmitted infection like HIV/AIDS. In order to better understand the influence of both government and non-government health information, we used webcrawler software to ascertain the relative influence of online public-facing HIV information resources.

Previous Australian studies into the online/mobile/social sexual health communication preferences of young people highlight some comfort with using the online medium for health resources and the importance of an authoritative brand to promote trust in online resources. For example, a 2012 Burnet Institute/Monash University survey of young people's level of comfort in accessing sexual health information from different sources (n=620, median age 18 years) found that 85 per cent of respondents (the highest proportion) were either comfortable or very comfortable accessing health information from websites, compared with mainstream media (67%), Facebook (52%) or Twitter (36%) (Lim et al., 2014). In terms of brand and authority, a 2011 UNSW study into the role of social media and social networking for sexual health communication conducted focus groups with Australians aged 16–22 years (n=22) and found that:

credibility and trustworthiness are important to young people when they are seeking information online. University or government branding is a signifier of these qualities, and young people use these types of organizations to identify a trusted source among the clutter of information online. (Evers et al., 2013, p. 272)

Based on these findings, the following soft hypothesis was formulated for this study:

Australian government health departments aim to serve as sites of *authoritative* HIV information e.g. on testing, safer sex and/or pre-exposure prophylaxis; and Australian NGO/NFP/charity HIV organisation sites fulfil a *recommender* function by providing a medium between their audience (e.g. gay men, sex workers) and sites of authoritative HIV-related health information.

Interdisciplinary approach

In order to address this soft hypothesis we used webcrawler software to ascertain the relative influence of online public-facing HIV information resources from both government and non-government organisations. Webcrawler software mimics the behaviour of a human browsing a website by following internal links within a website and, on each page it visits, collecting hyperlinks and text content (Elgin, 2015). The use of webcrawler software in the discipline of communication is not new: Han Woo Park's work on Hyperlink Network Analysis (2003) provides a helpful introduction to the methodological implications of webcrawler software.

The Virtual Observatory for the Study of Online Networks (VOSON) package by Uberlink (2016) was used for this study, due to the richness of the webcrawl data returned by the package alongside the additional analytical support for VOSON offered by Uberlink. The VOSON package has been applied to a range of studies, including the hyperlinking behaviours of Australian asylum advocacy groups (Lusher & Ackland, 2011). To a limited degree, this study builds upon the work of Schumate (2012) into the evolution of a HIV/AIDS NGO hyperlink network over a twelve-month period, which found that although NGO issue networks are related to the creation of hyperlinks, these hyperlinks can be short-lived.

This interdisciplinary research was conducted by researchers with backgrounds in communication, clinical HIV research and epidemiology respectively. The latter two disciplines are driven largely by quantitative approaches and, as a result, a quantitative approach to the measurement of the influence of online HIV/AIDS resources was adopted by the research team. We hope that this study will support the further use of quantitative approaches to allow closer cross-disciplinary collaboration between academic and clinical research in the field of health communication for the long-term management of sexually transmitted infection.

Measuring outbound vs. inbound influence

Two webcrawls were conducted in February and August 2016 in order to provide comparative data. The VOSON software requires a list of researcher-defined 'seed' entities to form the basis of the webcrawl from which it finds both *outbound* links (i.e. which sites the seeds hyperlink to) and *inbound* links (i.e. which sites hyperlink to the seeds).

Inbound hyperlink influence metrics are used to identify those sites that are influential, based on *who is linking to them*. The number of relevant inbound hyperlinks is a primary determinant of site ranking on Google and other search engines. While it is possible to use the number of inbound hyperlinks as a measure of site 'authority', we opted to use the Hyperlink Induced Topic Search (HITS) authority score (Kleinberg, 1999). HITS authority provides an improved measure of website influence compared with indegree because it can account for the network position of the site that is doing the linking. In particular, a site has greater HITS authority if it is linked to by sites that tend to link to authoritative sites. A site that has many inbound hyperlinks from sites that do not link to other sites will have a lower HITS authority score compared with another site that is linked to by sites that also link to other authoritative sites.

Outbound hyperlink influence metrics are used to identify those sites that are influential on the basis of *who they link to*. In other words, the influence of these sites is earned partly through their ability to recommend and direct a target audience towards authoritative information. We used the counterpart to the HITS authority score, the HITS hub score, as our measure of outbound hyperlink influence. Analogously to the HITS authority score, the HITS hub score takes account of the network position of the site that is being linked to. In particular a site has a greater HITS hub score if it links to sites that tend to be linked to by sites that are good hubs (i.e. they are good authorities).

The full list of seeds is reproduced in Appendix 1. Seed entities can include URLs, Facebook fan pages or Twitter handles. In this article, we report solely on data derived from URLs, and we hope to report on Facebook and Twitter data in follow-up studies. For the first pass, 35 seed URLs were specified, with 13 of these being government entities and 22 being non-government entities. All seeds URLs were selected from established organisations that provide HIV-related information. In order to provide some international comparisons with other English-speaking countries, organisations from New Zealand, the United Kingdom and the United States were included in the first pass.

The seeds were segmented both by *sector* (e.g. government, NGO/NFP or charity) and by the *territory covered* by the host organisation (e.g. Australian national, Australian

state or territory, overseas national). The segmentation of seeds by territory covered is described in Table 1.

Table 1: Seed entities, by host organisation territory

Seed entity: Main territory of host organisation	First pass: # entities crawled at location	Second pass: # entities crawled at location
National (Australia-wide)	6	6
Victoria	5	5
New South Wales	4	4
Queensland	4	4
South Australia	4	4
Tasmania	2	2
Western Australia	2	2
Northern Territory	1	1
Australian Capital Territory	1	1
Canada	0	2
New Zealand	2	2
UK	2	2
USA	2	2
<i>Total</i>	35	37

For the second pass, the seed list was adjusted in order to make the geographical representation of host organisations more consistent. Two Canadian entities (one central government site and one non-government site) were added for further international comparison, resulting in a total of 37 seed URLs, with fourteen of these being government entities and 23 being non-government entities. The segmentation of seeds by the sector type of the host organisation is described in Table 2.

Table 2: Seed sites, by host organisation sector

Seed entity: Sector type of host organisation	First pass: # entities by sector	Second pass: # entities by sector
Government: central	5	6
Government: state	8	8
Non-government: NGO	17	17
Non-government: NFP	1	1
Non-government: charity	4	5
<i>Total</i>	35	37

Findings

The first pass of the webcrawl was conducted on 26 February 2016 and returned a full hyperlink network containing 25,490 entities. The second pass of the webcrawl was conducted six months later, on 26 August 2016, and returned a full hyperlink network containing 25,513 entities. With reference to the discussion of findings in this section, note that the maximum possible auth, auth-F, hub or hub-F value is 1.0 in Tables 3, 4, 5 and 6 (these values are explained in the following sections). The auth, auth-F, hub or hub-F values of different entities can be compared within each pass but should not be compared between passes. Rather, the relative ranking of each entity within each pass can be compared – hence the importance of multiple passes when using the webcrawl method in order to track relative change in position and therefore in authority.

Inbound influence metrics/authorities

Inbound hyperlink influence metrics can identify those sites that are authoritative based on who is *linking to them*, which is particularly important to those HIV health promotion organisations (government and non-government) tasked with attracting people to their site in order to engage with health information that is evidence based and should be seen as trustworthy by health consumers. Table 3 identifies the top 15 most authoritative entities measured by the HITS authority score calculated over the full hyperlink network of seeds plus all the other entities discovered during the webcrawl (auth-F).

The key finding from the analysis of inbound influence described in Table 3 relates to the influence of non-Australian seed sites. The UK-based charity the Terrence Higgins Trust was ranked in the top five most authoritative entities in both passes. In a further demonstration of the relative influence of non-Australian online resources, the ‘get tested’ page of the US government’s Centers for Disease Control and Prevention was ranked in the top 13 most authoritative seeds in both passes. In contrast to the inbound influence of these United Kingdom and United States-based entities, no Australian government site was ranked in the top 20 most authoritative entities from the full network for inbound influence.

In terms of secondary findings described in Table 3, three of the top five most authoritative sites calculated over the full hyperlink network were – as might be expected – a large national organisation and two of the largest Australian state-based HIV health-promotion organisations in NSW and Victoria respectively: the Australian Federation of AIDS Organisations (AFAO, national), www.afao.org.au (auth-F: Feb 0.280, Aug 0.406); ACON (NSW-based), www.acon.org.au (auth-F: Feb 0.277, Aug 0.492); Victorian AIDS Council (VAC), www.vac.org.au (auth-F: Feb 0.213, Aug 0.293).

The appearance of the Terrence Higgins Trust (www.tht.org.uk) in the top five most authoritative entities in both passes (auth-F: Feb 0.256, Aug 0.316) was unexpected. THT is Britain’s largest voluntary sector provider of HIV and sexual health services, and a well-known organisation within many areas of the English-speaking HIV health community. The reason for its comparatively high authority in a survey of largely Australian-based entities is unknown, however, and warrants further investigation – especially since no Australian government entity was listed in the top 20. We speculate

that the THT's high position as an authoritative site reflects the substantial amount of HIV/AIDS health information available via its site, as well as the fact that UK models of prevention and care have been adopted widely in Australia.

Table 3: Top fifteen most authoritative entities measured by HITS authority score over full hyperlink network of seeds plus all other entities discovered during webcrawl (auth-F).

First pass	26-Feb-16	Second pass	26-Aug-16
<i>Entity</i>	<i>auth-F</i>	<i>Entity</i>	<i>auth-F</i>
nhs.uk	0.741	acon.org.au	0.492
afao.org.au	0.280	afao.org.au	0.406
acon.org.au	0.277	tht.org.uk	0.316
tht.org.uk	0.256	vac.org.au	0.293
vac.org.au	0.213	ntahc.org.au	0.241
ntahc.org.au	0.144	livingpositivevictoria.org.au	0.228
tascahrd.org.au	0.132	tascahrd.org.au	0.212
qahc.org.au	0.131	shinesa.org.au	0.180
shinesa.org.au	0.115	positivelife.org.au	0.175
livingpositivevictoria.org.au	0.113	qahc.org.au	0.168
positivelife.org.au	0.106	napwha.org.au	0.165
gettested.cdc.gov	0.099	qpp.net.au	0.150
qpp.net.au	0.097	gettested.cdc.gov	0.143
worldaidsday.org.au	0.096	worldaidsday.org.au	0.137
napwha.org.au	0.094	bgf.org.au	0.128

Note: Root URLs only provided.

The authority of UK resources is further indicated by the listing of the UK National Health Service as the most influential entity by far in the February pass (auth-F 0.741, a comparatively high value). However, the NHS is not listed in the top 20 of the August pass. This is partly because the February pass included two NHS seeds:

- <http://www.nhs.uk/Conditions/HIV/Pages/Diagnosispg.aspx>
- <http://www.nhs.uk/conditions/HIV/Pages/Introduction.aspx>.

In contrast, the second August pass only used the 'introduction' URL as a seed entity and omitted the 'diagnosis' URL in order to make room for additional Canada-based entities (note that this slight variation in seeds between the first and second passes is sub-optimal in terms of research design). Therefore, the use of one NHS URL rather than two would explain the reduction in influence for the NHS overall. However the 'introduction' page

did receive many fewer links in the second pass compared to the first and the reason for this remains unclear at this time.

Table 4 identifies the top ten most authoritative entities measured by the HITS authority score calculated over the network of seeds plus other ‘important’ entities (auth). An entity is considered important if it connects to two or more seeds. The key findings from the analysis of inbound influence described in Table 4 reinforce the lack of relative influence of online HIV/AIDS resources on government sites, since no government site from Australia, Canada, New Zealand, the United Kingdom or the United States was listed on the top 20 seed+ important entities for inbound influence/authority. Indeed, the top ten entities listed in Table 4 are all from the original list of seeds, and to this extent these findings are similar to those described in Table 3.

Table 4: Top ten most authoritative entities measured by HITS authority score over network of seeds plus other ‘important’ entities (auth).

First pass	26-Feb-16	Second pass	26-Aug-16
<i>Entity</i>	<i>auth</i>	<i>Entity</i>	<i>auth</i>
afao.org.au	0.457	afao.org.au	0.451
acon.org.au	0.365	acon.org.au	0.410
vac.org.au	0.333	vac.org.au	0.315
ntahc.org.au	0.271	ntahc.org.au	0.292
tascahrd.org.au	0.251	livingpositivevictoria.org.au	0.270
qahc.org.au	0.226	tascahrd.org.au	0.258
livingpositivevictoria.org.au	0.206	positivelife.org.au	0.209
positivelife.org.au	0.200	napwha.org.au	0.207
qpp.net.au	0.186	qahc.org.au	0.189
napwha.org.au	0.180	qpp.net.au	0.185

Note: Root URLs only provided.

Other findings

A few ‘important’ sites – that is, not from the original list of seeds – do appear further down the listing. For example, the Sydney-based public health research centre the Kirby Institute (with which two of the authors are affiliated) is listed in 20th position in the August pass (auth 0.041, a comparatively low value). We might be surprised that an academic research centre is listed as an authoritative entity in a study of public-facing HIV information resources, but it is quite possible that the Kirby Institute had published a report or media release close to the date of the August pass, which then linked to some of the highly ranked seeds.

Outbound influence metrics/recommenders

Outbound hyperlink influence metrics can identify entities that are influential based on *who they link to*. A common example of outbound influence might be a travel booking ‘recommender’ site that is popular due to the hotels etc. to which it links the user. Table 5 identifies the top fifteen most influential ‘recommender’ entities measured by the HITS hub score calculated over the full network (hub-F).

Table 5: Top fifteen most influential ‘recommender’ entities measured by HITS hub score over full network (hub-F)

First pass	26-Feb-16	Second pass	26-Aug-16
Entity	hub-F	Entity	hub-F
livingpositivevictoria.org.au	0.071	napwha.org.au	0.163
afao.org.au	0.067	livingpositivevictoria.org.au	0.160
napwha.org.au	0.067	afao.org.au	0.151
worldaidsday.org.au	0.064	straightarrows.org.au	0.146
journals.plos.org	0.053	worldaidsday.org.au	0.136
gaystarnews.com	0.052	stampoutsyphilis.info	0.125
disabilityhorizons.com	0.050	disclosureproject.org.au	0.121
avert.org	0.050	positivelifesa.org.au	0.119
metro.co.uk	0.050	womenlivingwell.org.au	0.115
magento-1102-22229-52005.cloudwaysapps.com	0.050	hivtnt.org.au	0.114
bbc.com	0.050	web.u1914483.fsdata.se	0.113
patient.info	0.050	aidsdagen.se	0.113
mylifebh.org.uk	0.050	noaksark.org	0.113
huffingtonpost.co.uk	0.050	hivnextsteps.org.au	0.112
bbc.co.uk	0.050	thebottomline.org.au	0.110

Note: Root URLs only provided.

The key finding from the analysis of outbound influence/recommender sites described in Table 5 is that no government site from Australia, Canada, New Zealand, the United Kingdom or the United States was listed on the top 20 most authoritative entities from the full network for outbound influence/recommenders. A number of media titles were listed in the first pass, including the UK *Gay Star News* (hub-F 0.052), the London-based news title *Metro* (hub-F 0.050), the BBC (bbc.com hub-F 0.050, bbc.co.uk 0.050) and *Huffington Post UK* (hub-F 0.050). None of these entities reappears in the second pass top 20, although Australian LGBTI title *Star Observer* was ranked at 19th place in the second pass (hub-F 0.106). Furthermore, the appearance of a range of media titles as well as

the UK *Patient* general consumer health portal in the first pass but not the second may be due to elevated discussion of an HIV-related issue during the period that the first pass was conducted. Most of these titles have the same hub-F score of 0.50. The listing of the *PLOS* scientific journal in the first pass (hub-F 0.053) is slightly unexpected; when taken alongside the listing of the Kirby Institute as an authoritative entity in the second pass (see Table 4), we see that certain academic information sources do influence public-facing HIV information portals.

Table 6 lists the top ten most influential ‘recommender’ entities measured by the HITS hub score calculated over the network of seed and ‘important’ sites (hub). Many of these entities are from the original list of seeds. The key finding from the analysis of outbound influence/recommenders from the top 20 seed+important sites is that no government site from Australia, Canada, New Zealand, the United Kingdom or the United States is listed on the top 20 seed+ important sites.

Table 6: Top ten most influential ‘recommender’ entities measured by HITS hub score over network of seed and ‘important’ sites (hub)

First pass	26-Feb-16	Second pass	26-Aug-16
<i>Entity</i>	<i>hub</i>	<i>Entity</i>	<i>hub</i>
worldaidsday.org.au	0.219	napwha.org.au	0.176
livingpositivevictoria.org.au	0.207	livingpositivevictoria.org.au	0.169
napwha.org.au	0.196	afao.org.au	0.166
afao.org.au	0.191	straightarrows.org.au	0.161
disclosureproject.org.au	0.146	worldaidsday.org.au	0.159
hepcawareub2.info	0.14	stampoutsyphilis.info	0.148
stampoutsyphilis.info	0.134	disclosureproject.org.au	0.145
hivtnt.org.au	0.132	positivelifesa.org.au	0.14
positivelife.org.au	0.13	hivtnt.org.au	0.136
wp-beta.harvestthe.net	0.128	womenlivingwell.org.au	0.135

Root URLs only provided.

Discussion and implications

This study used webcrawl software to test the influence of online HIV/AIDS information sources in Australia: both those entities that recommend resources and support to users – for example, NGOs and charities – and those entities that produce authoritative resources – for example, Health Departments. The soft hypothesis used to frame this study was that Australian government Health Departments aim to serve as sites of *authoritative* HIV information (e.g. on testing, safer sex and/or pre-exposure prophylaxis) and Australian NGO/NFP/charity HIV organisation sites fulfil a *recommender* function

by providing a medium between their audience (e.g. gay men, sex workers) and sites of authoritative HIV-related health information.

This soft hypothesis was not upheld. No Australian government site was highly ranked for either inbound (authoritative) or outbound (recommender) influence. Our data indicate that NGOs and charities operating at a national level, as well as state-based NGOs from the larger states of New South Wales, Queensland and Victoria are most highly ranked for both outbound and inbound influence.

As Table 2 indicates, each webcrawl was weighted approximately 1:2 non-government to government entities. This weighting broadly reflects the Australian HIV organisational environment, in which each major state may have one state government stakeholder (e.g. a state department of health) and a higher number of state-based NGOs and NFPs. Although this 1:2 weighting in favour of non-government organisations might partly explain our findings, it remains noteworthy that *no* Australian state or central government organisation features in the top 20 of either the authoritative (inbound influence) metrics or the recommender (outbound influence) metrics.

As discussed previously, a 2011 focus group-based study (n=22) by UNSW into the use of social media and social networking for sexual health communication by young Australians found that government branding of online health information was an important signifier of the quality of such information (Evers et al., 2013). In contrast, our findings indicate that with relation to HIV health communication, Australian government branding has not increased the influence of these online resources within the wider network of seed and important sites. The conflicting results from our study and the UNSW data underline the lack of agreement around which online resources are more influential in the wider sphere of online HIV/AIDS information. This lack of agreement supports a qualitative study into the communication strategies of New Zealand NFPs by Massey and AUT, which suggests that 'different segments within the non-profit sector have different approaches to the use of social media and communication channels' (Gray & Hopkins, 2016). Although this article has focused on the comparative influence of website resources, we acknowledge that multiple approaches to the measurement of online influence exist. In particular, we stress that our data do not signify web traffic – for example, number of visitors to each entity. Rather, the webcrawl method uses hyperlink data to demonstrate an entity's relative influence within a sector or industry (Uberlink, 2016), which is critical information for a more nuanced understanding of effective, ongoing health communication and interaction. Looking forward, by applying the new webcrawl method developed by this study to a range of other sexually transmitted infections – for example, chlamydia, gonorrhoea – we aim to bring further clarity to the question of online influence in order to support the future design and implementation of health communication and interaction strategies.

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Appendix 1: Complete list of seeds, both webcrawl passes

Area	Sector	Entity	Root URL
Aus national	NGO	Anwernekenhe National HIV Alliance	ana.org.au
	NGO	Australian Federation of AIDS Organisation	afao.org.au
	NGO	National Association of People with HIV Australia	napwha.org.au
	Charity	AIDS Trust of Australia	aidstrust.com.au
	Charity	World AIDS Day Australia	worldaidsday.org.au
	CG	Department of Health, Australia	sti.health.gov.au
ACT	NGO	AIDS Action Council	aidsaction.org.au
NSW	NGO	Aids Council of New South Wales	acon.org.au
	NGO	Positive Life NSW	positivelife.org.au
	Charity	Bobby Goldsmith Foundation	bgf.org.au
	SG	NSW Health: Ending HIV	health.nsw.gov.au
NT	NGO	Northern Territory Aids & Hepatitis Council	ntahc.org.au
QLD	NGO	HIV Foundation QLD	hivfoundation.org.au
	NGO	Queensland Positive People	qpp.net.au
	Charity	Queensland AIDS Council	qahc.org.au
	SG	Queensland Health	health.qld.gov.au
SA	NGO	SA Mobilisation + Empowerment for Sexual Health	samesh.org.au
	NGO	Sexual Health Information, Networking & Education	shinesa.org.au
	SG	SA Health: HIV and AIDS	sahealth.sa.gov.au...hiv+aids+infection
	SG	SA Health: PEP consumer	sahealth.sa.gov.au...post+exposure+prophylaxis
TAS	NGO	Tas Council on AIDS, Hepatitis and Related Diseases	tascahrd.org.au
	SG	Dept. Health and Human Services: HIV	dhhs.tas.gov.au
VIC	NGO	Positive Women Victoria	positivewomen.org.au
	NGO	Victorian Aids Council	vac.org.au
	NFP	Living Positive Victoria	livingpositivevictoria.org.au
	SG	Better Health Channel	betterhealth.vic.gov.au
	SG	VIC Health: HIV and AIDS	www2.health.vic.gov.au
WA	NGO	Western Australia Aids Council	waids.com
	SG	WA Health: HIV and AIDS	healthywa.wa.gov.au
New Zealand	NGO	New Zealand AIDS Foundation	nzaf.org.nz
	CG	Ministry of Health, NZ: HIV and AIDS	health.govt.nz
UK	Charity	Terrence Higgins Trust	tht.org.uk
	CG	National Health Service: HIV and AIDS	nhs.uk
USA	CG	Centers for Disease Control and Prevention: HIV testing	getttested.cdc.gov
	CG	Office on Women's Health: HIV	womenshealth.gov
Canada	NGO	CATIE*	catie.ca
	CG	Government of Canada: Health*	healthycanadians.gc.ca

* included in second webcrawl pass only.

Root URLs only provided.

CG = central government. SG = state government. NGO = non-government organisation. NFP = not-for-profit.