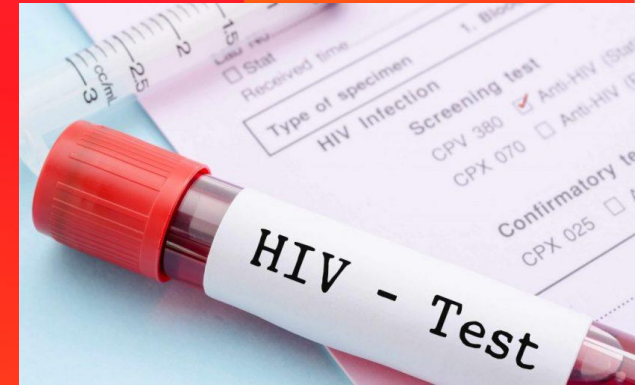


1 October 2019

# Future HIV testing models to reduce undiagnosed HIV

Associate Professor Dr. Jason Ong  
@DrJasonJOng



# Outline

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- Constraints of current HIV testing models
- Future testing models
- What do the people want?

## Out of scope but equally important are:

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- Support and referral pathways for those testing negative and positive
- Combined testing with STIs
- Normalize culture of HIV testing



# HIV testing is critical

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- Virtual elimination of HIV
  - Early diagnosis and treatment is one of the keys to controlling HIV
- PLHIV in Australia (2018)
  - 11% undiagnosed
  - 36% diagnosed late (CD4 <350)
- 11% undiagnosed -> 50% of incident HIV infection

<https://kirby.unsw.edu.au/report-type/annual-surveillance-reports>

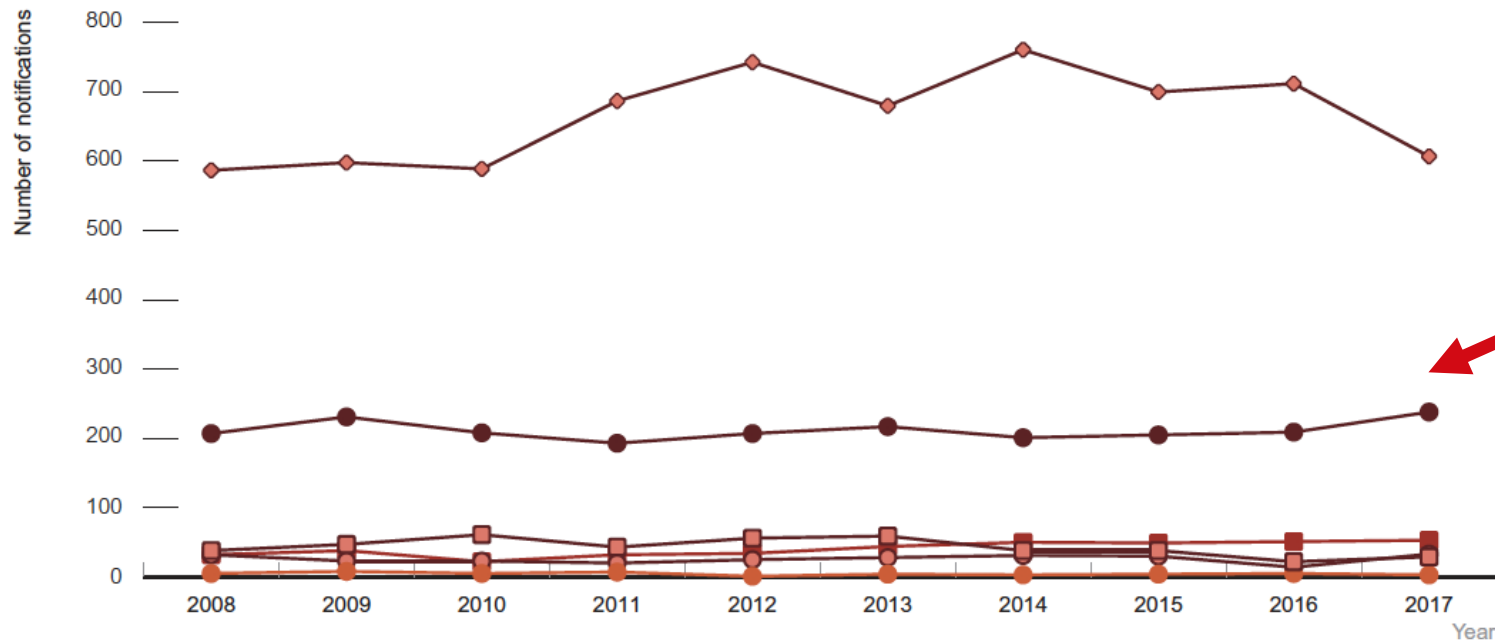


# HIV testing is critical

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- MSM tested in last 12 months (2018/19) - GCPS
  - 78% VIC/QLD
  - 77% NSW
  - 73% WA
  - 65% TAS

**Figure 1.1.9** Number of HIV notifications, 2008–2017, by exposure category



**25%**

◆ Male-to-male sex

587	598	589	687	743	680	761	700	712	607
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

■ Male-to-male sex and injecting drug use

32	38	22	32	34	44	50	49	51	53
----	----	----	----	----	----	----	----	----	----

● Injecting drug use

32	23	23	20	25	28	31	30	14	33
----	----	----	----	----	----	----	----	----	----

● Heterosexual sex

207	231	208	193	207	217	201	205	209	238
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

● Mother with/at risk of HIV infection

5	8	5	7	1	4	3	4	5	3
---	---	---	---	---	---	---	---	---	---

■ Other/undetermined

38	47	61	43	56	59	38	38	22	29
----	----	----	----	----	----	----	----	----	----

# Don't forget

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- **Heterosexuals esp CALD**
- **Overseas born MSM**
  - Particularly among Asian born
- **ATSI**
  - Rising proportion attributed to heterosexual sex (21%) and IVDU (18%)
- **Travellers**
- **Young people**

# The challenge

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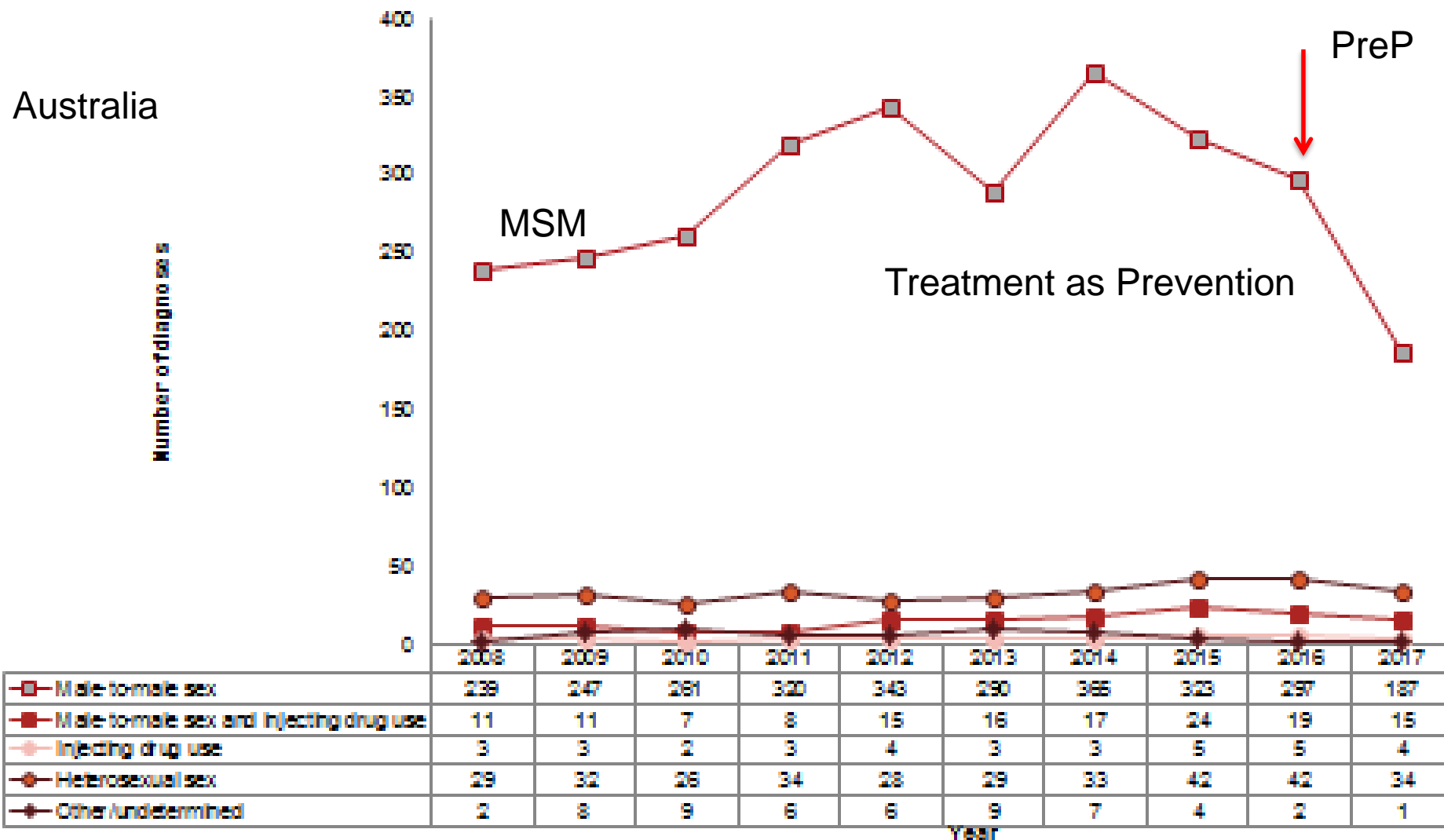
How do we reach the 11% PLHIV who don't know their status?

How do we encourage frequent HIV testing for those at ongoing risk?





**Figure 1.1.27** Number of new HIV diagnoses classified as newly acquired, 2007–2016, by exposure risk category



# To sustain this decline, we need to continue...

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- TasP
- PrEP
- PEP
- **Frequent (smarter) testing**
  - **Particularly to reach the “hidden populations”**

# “Traditional” HIV testing

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Attend a clinic



Talk to health professional about sexual health



Venepuncture



Results in 3-7 days

# Current barriers of “traditional testing services”

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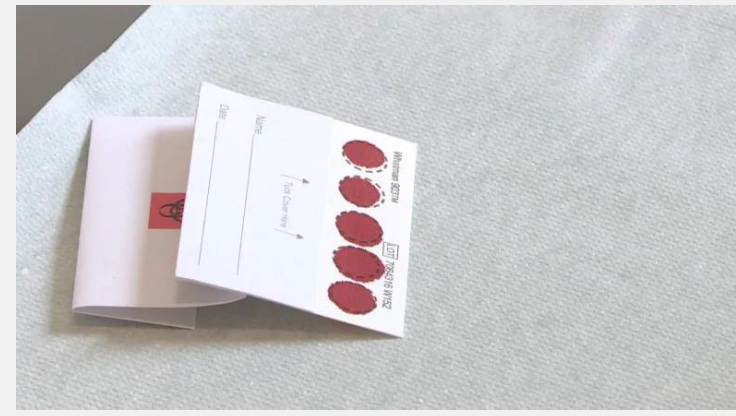
- **Individual level**
  - Fear of stigma and discrimination (in health care settings, society)
  - Inaccurate perception of risk
  - Embarrassment talking to health professionals
- **Structural**
  - Testing location
  - Cost
  - Travel time, waiting time, inconvenient opening times
- **Venepuncture test**



# New technologies enabling decentralization

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- Rapid point-of-care testing, self-testing and dried-blood spot
- Get HIV tests to the community and out of the health facility.
  - Opportunities to reach individuals who do not engage with traditional health services.



# How to optimize Rapid or Point-of-Care HIV testing

- **Pros**

- Results in 20 minutes
- Done in clinic or at 'home'
- No laboratory analysis
- Trained lay providers or testers themselves
- Acceptable, more comfortable, convenient, less stressful
- Can increase testing among those who had never tested or tested infrequently



- **Cons**

- Longer window period than venepuncture test (so issues with point-of-sex testing)

# Some cool ideas...



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# Peer-led services



# Peer-led community-based rapid HIV testing programs



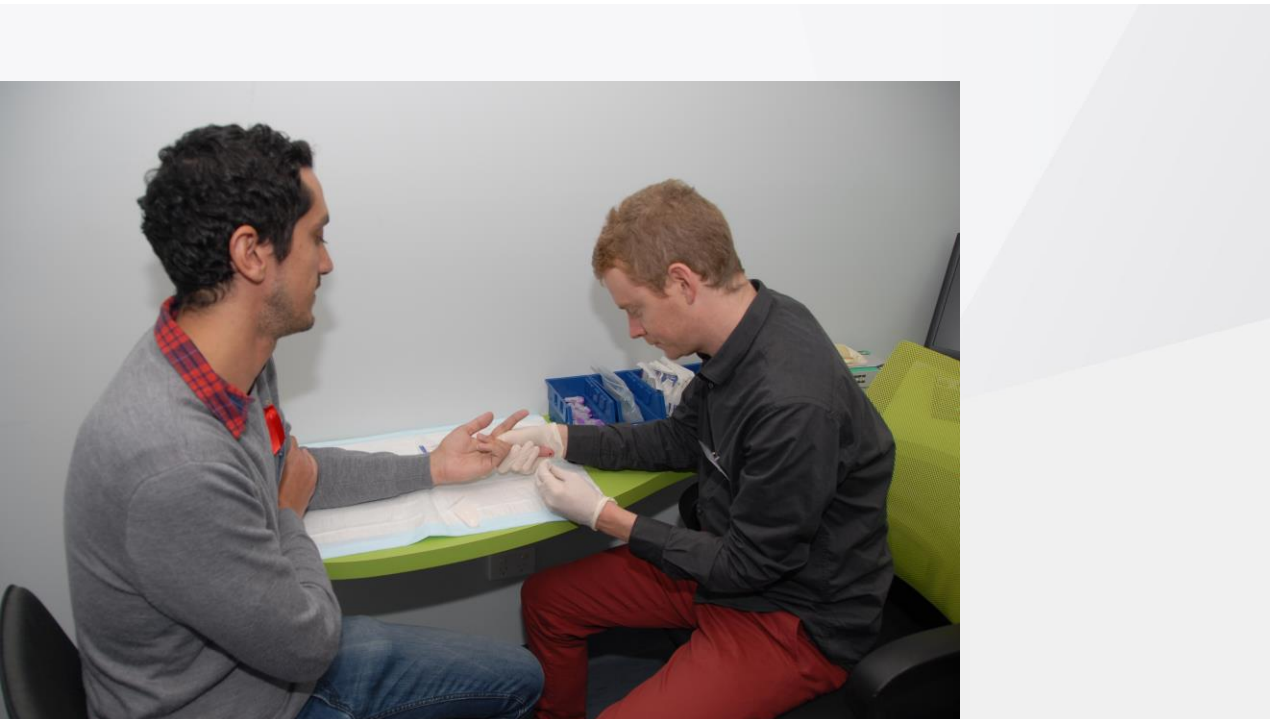
RESEARCH ARTICLE

Open Access



# Increasing HIV testing among hard-to-reach groups: examination of RAPID, a community-based testing service in Queensland, Australia

Allyson J. Mutch<sup>1\*</sup>, Chi-Wai Lui<sup>1</sup>, Judith Dean<sup>1</sup>, Limin Mao<sup>2</sup>, Jime Lemoire<sup>3</sup>, Joseph Debattista<sup>4</sup>, Chris Howard<sup>3</sup>, Andrea Whittaker<sup>5</sup> and Lisa Fitzgerald<sup>1</sup>



## Community based testing sites

### **RAPID (Brisbane)**

2 Winn Street  
Fortitude Valley QLD 4006  
HIV and syphilis testing  
Tuesday-Friday 3-8pm, Saturday 12-5pm  
(07) 3013 5566  
Email: [info@rapid.org.au](mailto:info@rapid.org.au)

### **RAPID (Gold Coast)**

Shop 12, 89-99 West Burleigh Road  
Burleigh Heads QLD 4220  
HIV and syphilis testing  
Thursday 3-6pm  
(07) 3013 5566  
Email: [info@rapid.org.au](mailto:info@rapid.org.au)

### **RAPID (@ Wet)**

22 Jeays Street  
Bowen Hills QLD 4006  
HIV and syphilis testing  
Tuesdays 2-7pm  
(07) 3013 5566  
Email: [info@rapid.org.au](mailto:info@rapid.org.au)

### **RAPID (@ Bodyline)**

45 Peel Street  
South Brisbane QLD 4101  
HIV and syphilis testing  
Wednesday 2-7pm  
(07) 3013 5566  
Email: [info@rapid.org.au](mailto:info@rapid.org.au)

# Go to where the people are...

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Awareness events

Testing at football matches

Roadshows

Saunas

etc...



# Community based distribution

Mangenah C et al. *Journal of the International AIDS Society* 2019, **22**(S1):e25255  
<http://onlinelibrary.wiley.com/doi/10.1002/jia2.25255/full> | <https://doi.org/10.1002/jia2.25255>



## RESEARCH ARTICLE

### Economic cost analysis of door-to-door community-based distribution of HIV self-test kits in Malawi, Zambia and Zimbabwe

From a societal perspective, the costs of HIVST appear similar to conventional HTS



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# HIV testing using the internet

# Internet-based distribution

Online order with \$5 deposit

Kits delivered to house  
(organized via CBOs)

Image of test results -> \$5 refunded

Reactive test -> peer navigator

J Med Internet Res. 2019 May 15;21(5):e11854



SNEAK PEEK

---

**Cost-effectiveness of online vs. offline HIV testing supported by community-based organizations among men who have sex with men in China**

Online HIVST testing model  
compared to  
rapid HIV testing in facilities  
is  
**cost-saving**

# Internet-based distribution

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- Internet-of-things
  - Bluetooth sensors detect opening of kits and notify study counselors -> call for post-test counselling and referrals
  - Opportunities to link self-test results to surveillance programs
  - Allow for real-time monitoring of self-testing procedures and timely reporting of information

*AIDS Patient Care and STDs. 2018;32(9):360-7*



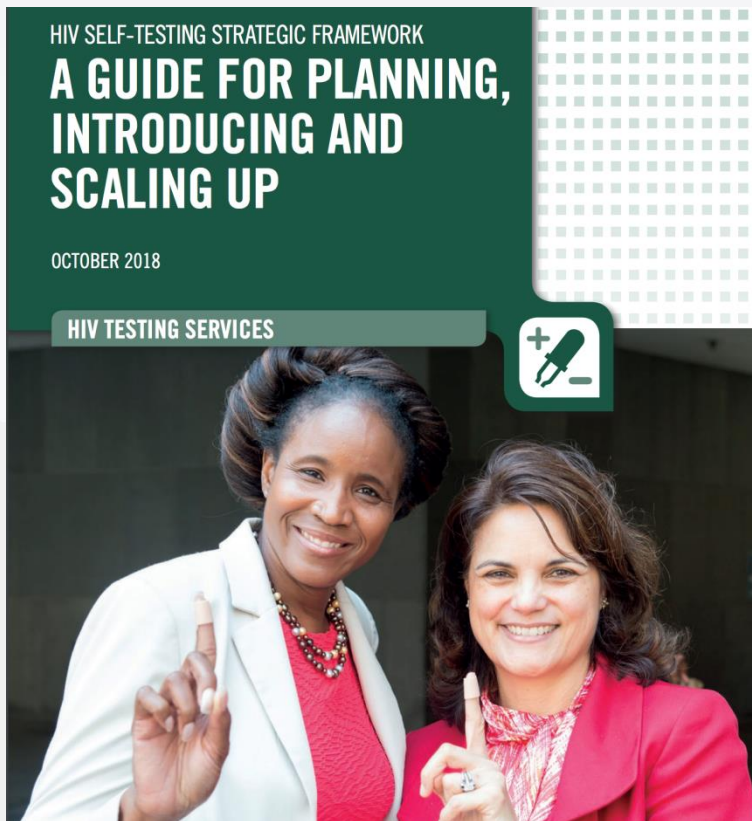


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# Secondary distribution (Partner delivered)

# Secondary distribution



- Pregnant/post-partum -> male partners
- Sexual partners of key populations
- Family/friends
- Index case
- Sex workers

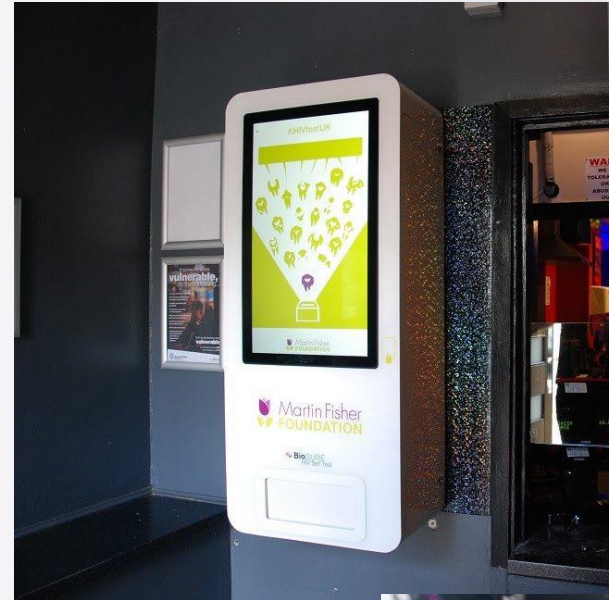
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# Increasing access to HIVST kits

# Increasing access to HIVST kits

- World first digital vending machine for free HIVST kits
- BMJ Award 2018
- Brighton sauna
- Under evaluation...



## Off the shelf from pharmacy / other retailers

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- Lots of pilot studies
  - Acceptable
  - Wanted
- Few countries have scaled up
  - South Africa
  - Thailand
  - UK
  - USA



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# How do you tailor HIV testing services – what do the people want?



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**We know...**  
**A one-size-fits-all approach will not work**

**We know...**  
**A one-size-fits-all approach will not work**

**Finite  
resources**

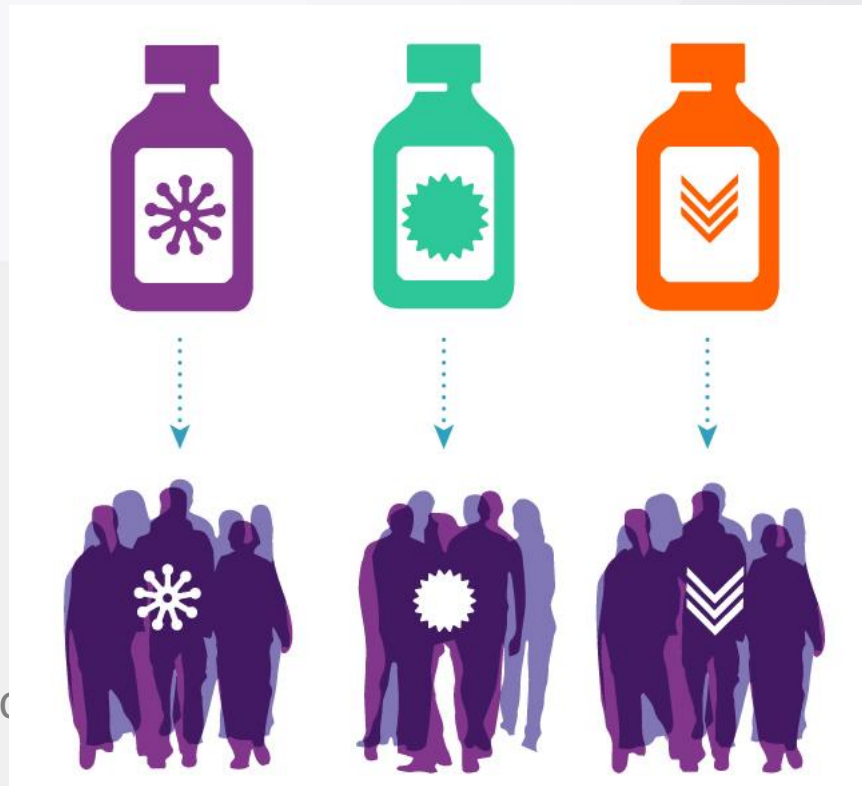
**Implement  
ALL 'cool'  
ideas**





# Era of 'precision medicine'

- Providing 'right program' to the 'right individuals' to maximize treatment effectiveness



# Learning from methods used in



**MARKET SEGMENTATION**

# The preferred qualities of HIV testing and self-testing among men who have sex with men: a discrete choice experiment

- 1606 Australian GBM
- 2018/19

Which of these two options would you prefer?

	HIV self-testing Option 1	HIV self-testing Option 2
<b>Cost (out of pocket)</b>	Free	\$20
<b>The Collector of the required specimen</b>	Healthcare worker	Peer
<b>Accuracy</b>	<b>920 out of 1000</b> test results are correct	<b>950 out of 1000</b> test results are correct
<b>Speed of results</b>	20 minutes	1 day
<b>Mode of test</b>	Blood sample using a finger prick	Blood sample using a finger prick
<b>Window period</b>	It takes <b>12 weeks</b> after a risky event before the test shows if you've been infected	It takes <b>6 weeks</b> after a risky event before the test shows if you've been infected
<b>Which would you choose?</b>	<input type="radio"/>	<input type="radio"/>

- Recent migrants
- Infrequent testers

Accuracy



- Recent migrants
- Frequent partner change

Cheap test



- Age >25
- Infrequent partner change
- Australian born
- Frequent testers

Window period



- Infrequent testers
- Age >25 years

Self-testing



# Self-test kit distribution

- Class 1 (45%) – Price-sensitive
- Class 2 (29%) – Retail (Pharmacy or online)
- Class 3 (14%) – Sex-on-premises venues
- Class 4 (12%) – Buy from healthcare staff

# So much more questions...

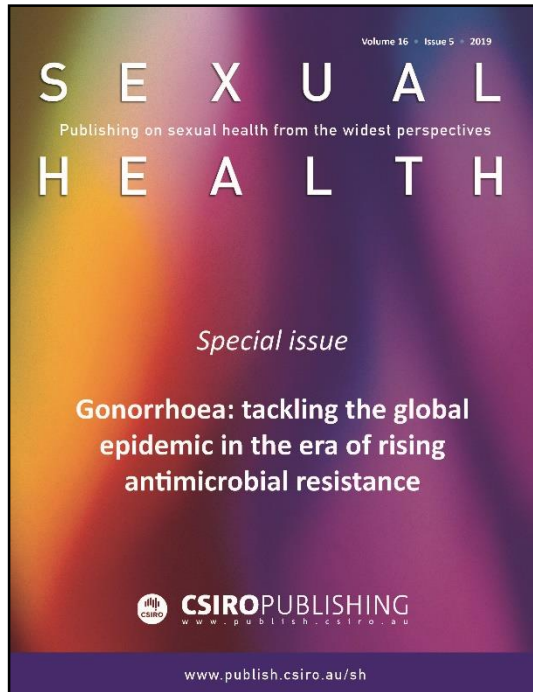
- Need to diversify testing models and approaches (service redesign)
  - What do non-MSM groups want?
  - Optimize current sexual health service configurations?
  - Need for *local* preference data

# Take home message

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- We already have the means / motivation to eliminate HIV
- **Smarter testing models** are needed
  - We can learn from what has worked elsewhere
  - BUT find out what the people want...

# READ THE NEW OPEN ACCESS SPECIAL ISSUE



## ➤ Gonorrhoea: tackling the global epidemic in the era of rising antimicrobial resistance

Guest editors: Jason J. Ong, Teodora Wi, Gwenda Hughes, Deborah Williamson, Philippe Mayaud and Eric Chow

**OPEN ACCESS ISSUE**

[publish.csiro.au/sh](http://publish.csiro.au/sh)

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Thank you  
@DrJasonJOng