

HIV Drug Interactions

Mission, activities and users' experience

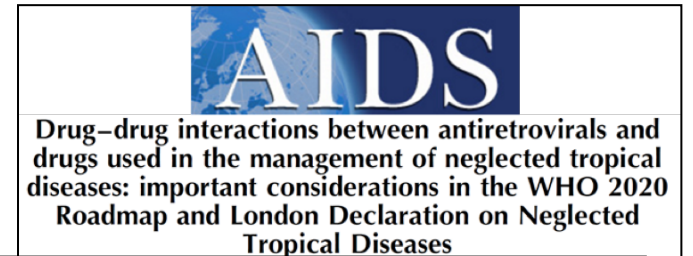
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The Problem

- 1 Quality of treatment
- 2 Multiple ageing related co-morbidities
 - Traditional communicable diseases
 - Collision with NCD pandemic
- 3 Evidence for poor prescribing



J Antimicrob Chemother 2011; **66**: 2107–2111
doi:10.1093/jac/dkr248 Advance Access publication 16 June 2011

**Journal of
Antimicrobial
Chemotherapy**

Ageing with HIV: medication use and risk for potential drug–drug interactions

Catia Marzolini^{1*}, David Back², Rainer Weber³, Hansjakob Furrer⁴, Matthias Cavassini⁵, Alexandra Calmy⁶, Pietro Vernazza⁷, Enos Bernasconi⁸, Saye Khoo², Manuel Battegay¹ and Luigia Elzi¹ on behalf of the Swiss HIV Cohort Study†



K. Seden^{1*}, C. Merry^{2,3}, R. Hewson¹, M. Siccardi¹, M. Lamorde^{2,3}, P. Byakika-Kibwika^{2,3}, E. Laker², R. Parkes-Ratanshi², D. J. Back¹ and S. H. Khoo^{1,4}

OPEN ACCESS Freely available online

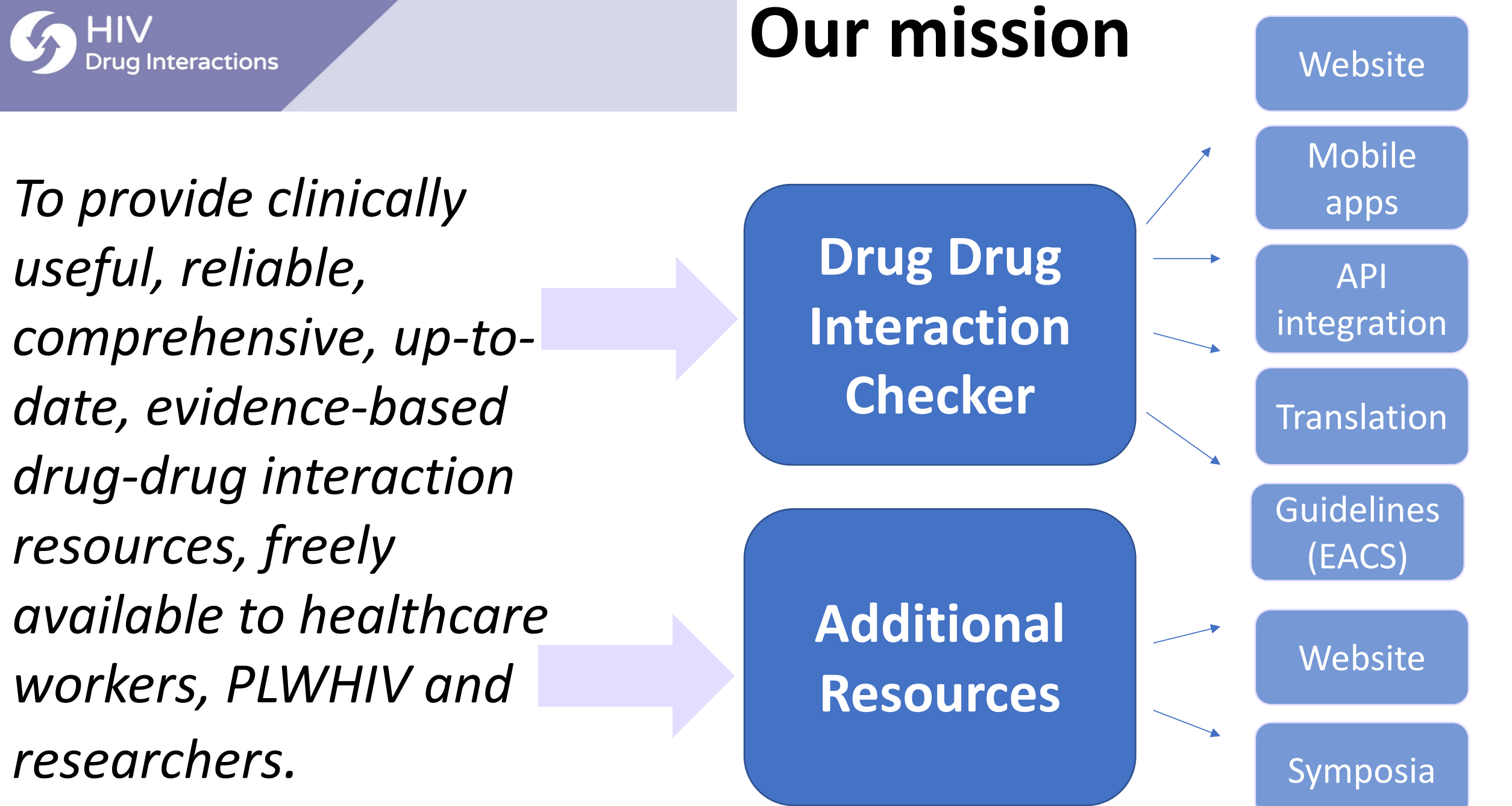


Prevalence of Potential Drug-Drug Interactions Involving Antiretroviral Drugs in a Large Kenyan Cohort

Gabriel Kigen^{1,2}, Sylvester Kimaiyo³, Winstone Nyandiko³, Brian Faragher⁴, Edwin Sang³, Beatrice Jakait¹, Andrew Owen², David Back², Sara Gibbons², Kay Seden⁵, Saye H. Khoo^{2,5*}, on behalf of the USAID-Academic Model for Prevention Treatment of HIV/AIDS

Our mission

To provide clinically useful, reliable, comprehensive, up-to-date, evidence-based drug-drug interaction resources, freely available to healthcare workers, PLWHIV and researchers.



**Drug Drug
Interaction
Checker**

**Additional
Resources**

Website

Mobile
apps

API
integration

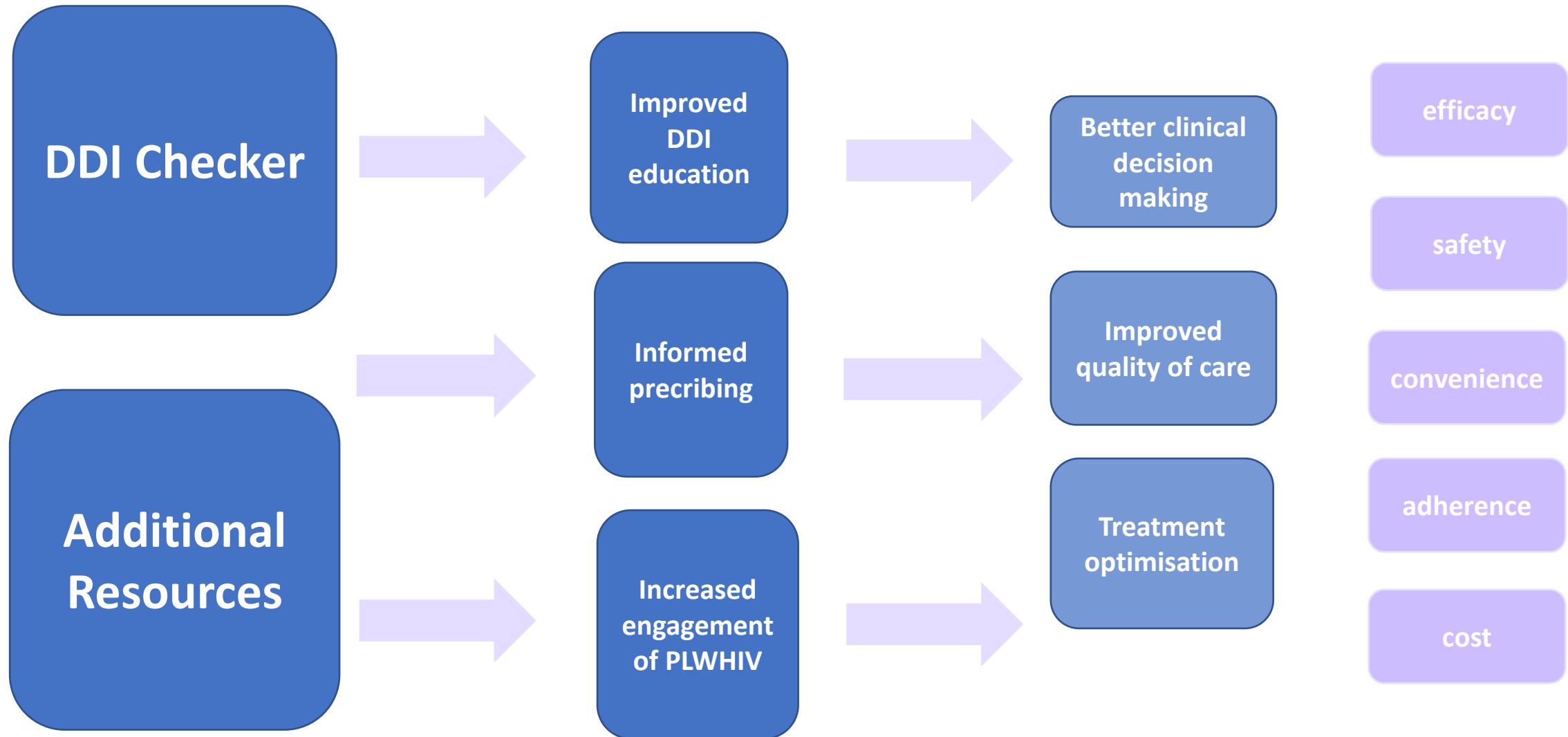
Translation

Guidelines
(EACS)

Website

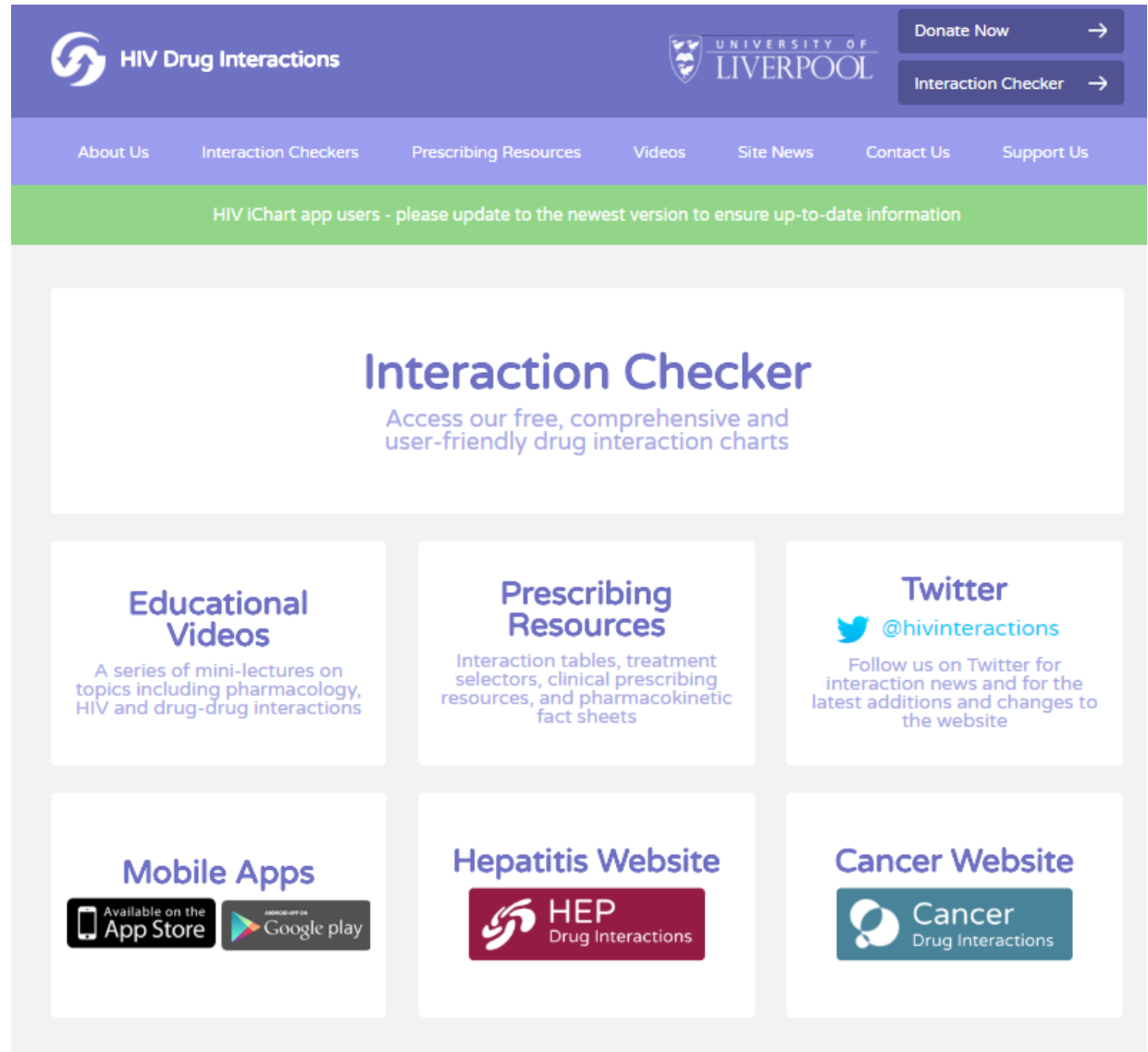
Symposia

Outcomes



Resources

www.hiv-druginteractions.org



The screenshot shows the homepage of the HIV Drug Interactions website. The header is purple and contains the HIV Drug Interactions logo, the University of Liverpool logo, and links for 'Donate Now' and 'Interaction Checker'. Below the header is a navigation bar with links for 'About Us', 'Interaction Checkers', 'Prescribing Resources', 'Videos', 'Site News', 'Contact Us', and 'Support Us'. A green banner below the navigation bar states: 'HIV iChart app users - please update to the newest version to ensure up-to-date information'. The main content area features a large white box with the title 'Interaction Checker' and the text 'Access our free, comprehensive and user-friendly drug interaction charts'. Below this are six white boxes arranged in a 2x3 grid. The first row contains 'Educational Videos' (describing mini-lectures on pharmacology, HIV, and drug-drug interactions), 'Prescribing Resources' (describing interaction tables, treatment selectors, clinical prescribing resources, and pharmacokinetic fact sheets), and 'Twitter' (with the handle @hivinteractions and a prompt to follow for news and updates). The second row contains 'Mobile Apps' (with 'Available on the App Store' and 'ANDROID APP ON Google play' badges), 'Hepatitis Website' (with a 'HEP Drug Interactions' logo), and 'Cancer Website' (with a 'Cancer Drug Interactions' logo).

HIV Drug Interactions UNIVERSITY OF LIVERPOOL [Donate Now](#) [Interaction Checker](#)

[About Us](#) [Interaction Checkers](#) [Prescribing Resources](#) [Videos](#) [Site News](#) [Contact Us](#) [Support Us](#)

HIV iChart app users - please update to the newest version to ensure up-to-date information

Interaction Checker

Access our free, comprehensive and user-friendly drug interaction charts

Educational Videos

A series of mini-lectures on topics including pharmacology, HIV and drug-drug interactions

Prescribing Resources

Interaction tables, treatment selectors, clinical prescribing resources, and pharmacokinetic fact sheets

Twitter

[@hivinteractions](#)

Follow us on Twitter for interaction news and for the latest additions and changes to the website

Mobile Apps

Available on the App Store [ANDROID APP ON Google play](#)

Hepatitis Website

HEP Drug Interactions

Cancer Website

Cancer Drug Interactions

Interaction Checker

Access our free, comprehensive and
user-friendly drug interaction charts

- Our primary resource
- Database of 28 HIV drugs (including FDCs) and 700 comedications
- Approx. 20,000 drug-drug pairs reviewed
- Over 250,000 DDI queries returned each month from 188 countries

1. Select HIV Drugs

HIV Drugs

Search HIV drugs...

☒ A-Z ☐ Class ☐ Trade

☒ Bictegravir/FTC/TAF ☐ Abacavir ☐ Atazanavir ☒ Bictegravir/FTC/TAF ☐ Cobicistat (with ATV or DRV) ☐ Darunavir

Search by
generic name,
drug class or
trade name

2. Select Comedications

Co-medications

omep

☒ A-Z ☐ Class ☐ Trade

☒ Omeprazole ☐ Esomeprazole ☐ Levomepromazine ☒ Omeprazole

Click for
further info

3. View DDI recommendations

No Interaction Expected

Bictegravir/FTC/TAF

Omeprazole

More Info

Quality of Evidence: Very Low

Summary:

Coadministration has not been studied but based on metabolism and clearance a clinically significant interaction is unlikely. Studies have shown no evidence that bictegravir solubility is impacted by changes in pH and therefore can be coadministered with PPIs or H2-antagonists without dose adjustment or separation. Emtricitabine and tenofovir alafenamide are not impacted by omeprazole.

Recommendations
are displayed using
a 'traffic lights'
format



These drugs should not be coadministered



Potential clinically significant interaction that is likely to require additional monitoring, alteration of drug dosage or timing of administration.



Potential interaction likely to be of weak intensity. Additional action/monitoring or dosage adjustment is unlikely to be required



No clinically significant interaction expected



There are no clear data, actual or theoretical, to indicate whether an interaction will occur

How do you interpret these
colours?

PDF interaction reports can be downloaded and saved to patient records

bic


A-Z

☒ Bict

☒ Bict

☐ Cob

Genera

www.hiv-druginteractions.org

Interaction Report

Report ID:
Date Produced: 26 April 2018

Antiretroviral Treatment	Co-medications
Bictegravir/FTC/TAF	Omeprazole St John's Wort

This report lists the summaries of potential interactions (i.e. "red", "amber" and "yellow" classifications) for the drugs in the table above.

Interactions with a "green" or "grey" classification (i.e. no clinically significant interaction or no clear data) have been checked and are listed at the end of this report, but summaries are not shown.

For full details of all interactions, see www.hiv-druginteractions.org.

Description of the interactions

Drugs that should not be coadministered (RED)

Bictegravir/FTC/TAF + St John's Wort
Coadministration has not been studied and is not recommended as St John's wort may substantially decrease bictegravir and tenofovir alafenamide plasma concentrations which

Prescribing Resources

Interaction tables, treatment selectors, clinical prescribing resources, and pharmacokinetic fact sheets

Over 50 printable charts and factsheets to support prescribing.

[Overview of Interactions](#)[Treatment Selectors \(by therapeutic indication\)](#)[Treatment Selectors \(by patient characteristics\)](#)[Pharmacokinetic Fact Sheets - PIs](#)[Pharmacokinetic Fact Sheets - PK enhancer](#)[Pharmacokinetic Fact Sheets - NNRTIs](#)[Pharmacokinetic Fact Sheets - NRTIs](#)[Pharmacokinetic Fact Sheets - Entry/Integrase Inhibitors](#)

Interactions with Entry & Integrase Inhibitors

Charts revised February 2018. Full information available at www.hiv-druginteractions.org

Page 1 of 4

Interactions with Protease Inhibitors

Charts revised February 2018. Full information available at www.hiv-druginteractions.org

Page 1 of 4

Interactions with NRTIs

Charts revised February 2018. Full information available at www.hiv-druginteractions.org

Page 1 of 4

Please note that if a drug is not listed it cannot automatically be assumed it is safe to coadminister.

Anaesthetics & Muscle Relaxants	
Alcuronium	
Bupivacaine	
Cisatracurium	
Desflurane	
Dexmedetomidine	
Enflurane	
Ephedrine	
Halothane	
Isoflurane	
Ketamine	
Nitrous oxide	
Propofol	
Rocuronium	
Sevoflurane	
Sufentanil	
Suxamethonium (succinylcholine)	
Tetracaine	
Thiopental	
Tizanidine	
Vecuronium	
Analgesics	
Alfentanil	
Aspirin	
Buprenorphine	
Celecoxib	
Codeine	
Dextropropoxyphene	
Diamorphine	
Diclofenac	
Dihydrocodeine	
Fentanyl	
Hydrocodone	
Hydromorphone	
Ibuprofen	
Mefenamic acid	
Methadone	
Morphine	
Naproxen	
Nimesulide	
Oxycodone	
Paracetamol	
Pethidine (Meperidine)	
Piroxicam	
Tramadol	

	ABC	ddl	FTC	F/TAF	3TC	d4T	TDF	ZDV
Anaesthetics & Muscle Relaxants								
Alcuronium	●	●	▲	▲	▲	▲	▲	●
Bupivacaine	●	●	●	●	●	●	●	●
Cisatracurium	●	●	●	●	●	●	●	●
Desflurane	●	●	●	●	●	●	●	●
Dexmedetomidine	●	●	●	●	●	●	●	●
Enflurane	●	●	●	●	●	●	●	●
Ephedrine	●	●	●	●	●	●	●	●
Halothane	●	●	●	●	●	●	●	●
Isoflurane	●	●	●	●	●	●	●	●
Ketamine	●	●	●	●	●	●	●	●
Nitrous oxide	●	●	●	●	●	●	●	●
Propofol	●	●	●	●	●	●	●	●
Rocuronium	●	●	●	●	●	●	●	●
Sevoflurane	●	●	●	●	●	●	●	●
Sufentanil	●	●	●	●	●	●	●	●
Suxamethonium (succinylcholine)	●	●	●	●	●	●	●	●
Tetracaine	●	●	●	●	●	●	●	●
Thiopental	●	●	●	●	●	●	●	●
Tizanidine	●	●	●	●	●	●	●	●
Vecuronium	●	●	●	●	●	●	●	●
Analgesics								
Alfentanil	●	●	●	●	●	●	●	●
Aspirin	●	●	●	●	●	●	●	●
Buprenorphine	●	●	●	●	●	●	●	●
Celecoxib	●	●	●	●	●	●	●	●
Codeine	●	●	●	●	●	●	●	●
Dextropropoxyphene	●	●	●	●	●	●	●	●
Diamorphine (diacetylmorphine)	●	●	●	●	●	●	●	●
Diclofenac	●	●	●	●	●	●	●	●
Dihydrocodeine	●	●	●	●	●	●	●	●
Fentanyl	●	●	●	●	●	●	●	●
Hydrocodone	●	●	●	●	●	●	●	●
Hydromorphone	●	●	●	●	●	●	●	●

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	ABC	ddl	FTC	F/TAF	3TC	d4T	TDF	ZDV
Antibacterials (continued)								
Ertapenem	●	●	●	●	●	●	●	●
Erythromycin	●	●	●	●	●	●	●	●
Ethambutol	●	●	●	●	●	●	●	●
Ethionamide	●	●	●	●	●	●	●	●
Flucloxacillin	●	●	●	●	●	●	●	●
Gentamicin	●	●	●	●	●	●	●	●
Imipenem/Cilastatin	●	●	●	●	●	●	●	●
Isoniazid	●	●	●	●	●	●	●	●
Kanamycin	●	●	●	●	●	●	●	●
Levofloxacin	●	●	●	●	●	●	●	●
Linezolid	●	●	●	●	●	●	●	●
Meropenem	●	●	●	●	●	●	●	●
Metronidazole	●	●	●	●	●	●	●	●
Moxifloxacin	●	●	●	●	●	●	●	●
Nitrofurantoin	●	●	●	●	●	●	●	●
Ofloxacin	●	●	●	●	●	●	●	●
Para-aminosalicylic acid	●	●	●	●	●	●	●	●
Penicillins	●	●	●	●	●	●	●	●
Pyrazinamide	●	●	●	●	●	●	●	●
Rifabutin	●	●	●	●	●	●	●	●
Rifampicin	●	●	●	●	●	●	●	●
Rifapentine	●	●	●	●	●	●	●	●
Rifaximin	●	●	●	●	●	●	●	●
Spectinomycin	●	●	●	●	●	●	●	●
Streptomycin	●	●	●	●	●	●	●	●
Sulfadiazine	●	●	●	●	●	●	●	●
Telithromycin	●	●	●	●	●	●	●	●
Tetracyclines	●	●	●	●	●	●	●	●
Trimethoprim/Sulfamethoxazole	●	●	●	●	●	●	●	●
Vancomycin	●	●	●	●	●	●	●	●
Anti-coagulant, Anti-platelet and Fibrinolytic								
Acenocoumarol	●	●	●	●	●	●	●	●
Apixaban	●	●	●	●	●	●	●	●
Aspirin (anti-platelet)	●	●	●	●	●	●	●	●

Overview of interactions by ARV drug class

[www.hiv-druginteractions.org](#)

Bronchodilators (for COPD) Treatment Selector

[www.hiv-druginteractions.org](#)

Analgasic Treatment Selector

Charts revised December 2016
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[www.hiv-druginteractions.org](#)

Contraceptive Treatment Selector

Charts revised February 2018. Full information available at [www.hiv-druginteractions.org](#)
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	ATV/r	DRV/r	LPV/r	EFV	ETV	NVP	RPV	MVC	DTG	RAL	ABC	FTC	3TC	TDF	ZDV	E/C/F/TAF	E/C/F/TDF
Aspirin																	
Celecoxib																	
Diclofenac																	
Ibuprofen																	
Mefenamic acid																	
Naproxen																	
Nimesulide																	
Paracetamol																	
Piroxicam																	
Ethinylestradiol	↓19% ^a	↑44% ^b	↓42% ^c	↔ ^e	↑22%	↓20%	↑14%	↔	↑3%	↔	↔	↔	↔	↔	↔	↓25% ^d	↓25% ^d
Desogestrel	↑ ^{a,a}	↑ ^{a,f}	↑ ^{a,i}	↓ ^g	↓	↓	↔	↔	↔	↔	↔	↔	↔	↔	↔	↑ ^h	↑ ^h
Drospirenone	↑ ^a	↑ ^f	↑ ⁱ	↓ ^g	↓	↓	↔	↔	↔	↔	↔	↔	↔	↔	↔	↑ ^h	↑ ^h
Gestodene	↑ ^a	↑ ^f	↑ ⁱ	↓ ^g	↓	↓	↔	↔	↔	↔	↔	↔	↔	↔	↔	↑ ^h	↑ ^h
Levonorgestrel	↑ ^a	↑ ^f	↑ ⁱ	↓ ^g	↓	↑	↔	↔	↔	↔	↔	↔	↔	↔	↔	↑	↑
Norethisterone (Norethindrone)	↑ ^{a,j}	↓14% ^p	↓17% ^q	↓ ^g	↓5%	↓19%	↓11%	↔	↔	↔	↔	↔	↔	↔	↔	↑ ^h	↑ ^h
Norgestimate	↑85% ^a	↑ ^f	↑ ⁱ	↓64% ^r	↓	↓	↔	↔	↔	↑14%	↔	↔	↔	↔	↔	↑126% ^s	↑126% ^t
Norgestrel	↑ ^a	↑ ^f	↑ ⁱ	↓ ^g	↓	↑29%	↔	↔	↔	↔	↔	↔	↔	↔	↔	↑ ^h	↑ ^h
Desogestrel	↑	↑	↑	↓ ^g	↓	↓	↔	↔	↔	↔	↔	↔	↔	↔	↔	↑	↑
Levonorgestrel	↑	↑	↑	↓ ^g	↓	↑	↔	↔	↔	↔	↔	↔	↔	↔	↔	↑	↑
Norethisterone (Norethindrone)	↑50% ^j	↑50%	↑50%	↓ ^g	↓	↓	↔	↔	↔	↔	↔	↔	↔	↔	↔	↑	↑
Etonogestrel (implant)	↑	↑	↑52%	↓63% ^x	↓	↓	↔	↔	↔	↔	↔	↔	↔	↔	↔	↑	↑
Etonogestrel (CVR)	↑ ^j	↑ ^j	↑ ^j	↓ ^k	↓	↓	↔	↔	↔	↔	↔	↔	↔	↔	↔	↑ ^l	↑ ^l
Levonorgestrel (IUD)	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Levonorgestrel (implant)	↑	↑	↑	↓47% ^k	↓	↑14%	↔	↔	↔	↔	↔	↔	↔	↔	↔	↑	↑
Medroxy-progesterone	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Alfentanil																	

Prescribing in the Elderly

Revised November 2016

Hormone Therapy for Gender Transitioning

Revised September 2017

Page 1 of 2

For person

Estrogen and

Estrogens	
Estradiol oral	Startin Averag Maxim
Estradiol gel (preferred for >40 y and/or smokers)	Startin Averag Maxim
Estradiol patch (preferred for >40 y and/or smokers)	Startin Averag Maxim
Conjugated estrogen†	Startin Averag Maxim
Ethinylestradiol	Startin Averag Maxim
Androgen Blockers	
Spironolactone	Startin Averag Maxim
Finasteride	Startin Averag Maxim
Cyproterone acetate	Startin Averag Maxim

Antiretroviral Formulations for Swallowing Difficulties

Revised April 2017

For personal use

Long-term use medications and TDF/FTC PrEP

Revised December 2017

This is a summary of key long-term use medications to be avoided or used with caution with **tenofovir-DF/emtricitabine (TDF/FTC)** when used as PrEP. Full details and interactions with additional comedications can be found at www.hiv-druginteractions.org.

Antiretroviral	Form
NRTIs	
Abacavir	Oral (Ziagen) Tablet (Ziagen)
Didanosine	Powder (Videx) Chewable tablet (Videx)
Emtricitabine	Oral (Emtriva)

	TDF/FTC	Comment
Analgesics		
Aspirin	❌	Risk of nephrotoxicity with TDF. Monitor renal function.
Celecoxib	❌	Risk of nephrotoxicity with TDF. Monitor renal function.
Diclofenac	❌	Risk of nephrotoxicity with TDF. Monitor renal function.
Ibuprofen	❌	Risk of nephrotoxicity with TDF. Monitor renal function.
Mefenamic acid	❌	Risk of nephrotoxicity with TDF. Monitor renal function.
Naproxen	❌	Risk of nephrotoxicity with TDF. Monitor renal function.
Nimesulide	❌	Risk of nephrotoxicity with TDF. Monitor renal function.
Piroxicam	❌	Risk of nephrotoxicity with TDF.

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	TDF/FTC	Comment
Cytotoxics		
Capecitabine	❌	Monitor side effects of cytotoxic agent.
Carboplatin	❌	Risk of nephrotoxicity with TDF. Monitor renal function.
Cisplatin	❌	Risk of nephrotoxicity with TDF. Monitor renal function.
Dacarbazine	❌	Monitor renal function and haematological parameters.
Ifosfamide	❌	Risk of nephrotoxicity with TDF. Monitor renal function.
Methotrexate	❌	Risk of nephrotoxicity with TDF. Monitor renal function.
Oxaliplatin	❌	Risk of nephrotoxicity with TDF. Monitor renal function.
Hepatitis C DAAs		

Advice on
prescribing
for
particular
patient groups

Educational Videos

A series of mini-lectures on topics including pharmacology, HIV and drug-drug interactions

Over 20 mini-lectures on DDIs from world-renowned Clinicians, Pharmacists and Pharmacologists

Conference Symposia and Clinical Case Presentations

Basic Drug Disposition

Drug Disposition and HIV

Advanced Drug Disposition and Antiretroviral Therapy (ART)



ART in older patients

Presented by Doctor Marta Boffito

Site Updates

Entries for the current year and the preceding year are shown here. Older entries can be found in the archive.

[2018](#)[2017](#)[Archive](#)

2018

Bictegravir/Emtricitabine/Tenofovir alafenamide

Interactions with bictegravir/emtricitabine/tenofovir alafenamide are now included on the website, HIV i Chart app and printable charts. For ease of viewing on small screens, the listing appears as “Bictegravir/FTC/TAF”.

Bictegravir/emtricitabine/tenofovir alafenamide (Bictarvy®) is a fixed dose combination and is indicated as a complete regimen for the treatment of HIV-1 infection....

Added: Thursday 15 February 2018

Hepatitis Website



Cancer Website



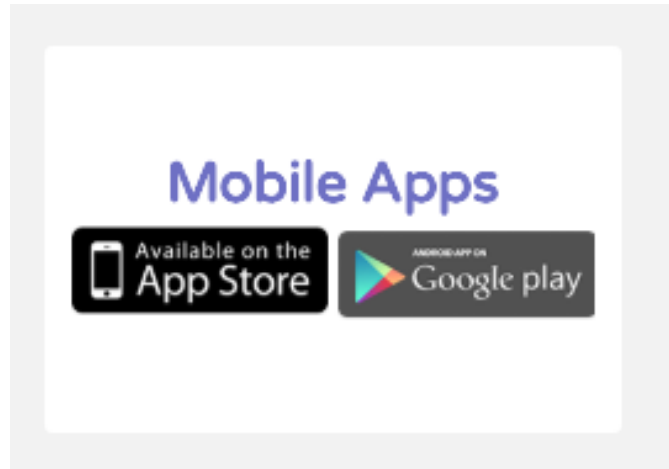
Twitter



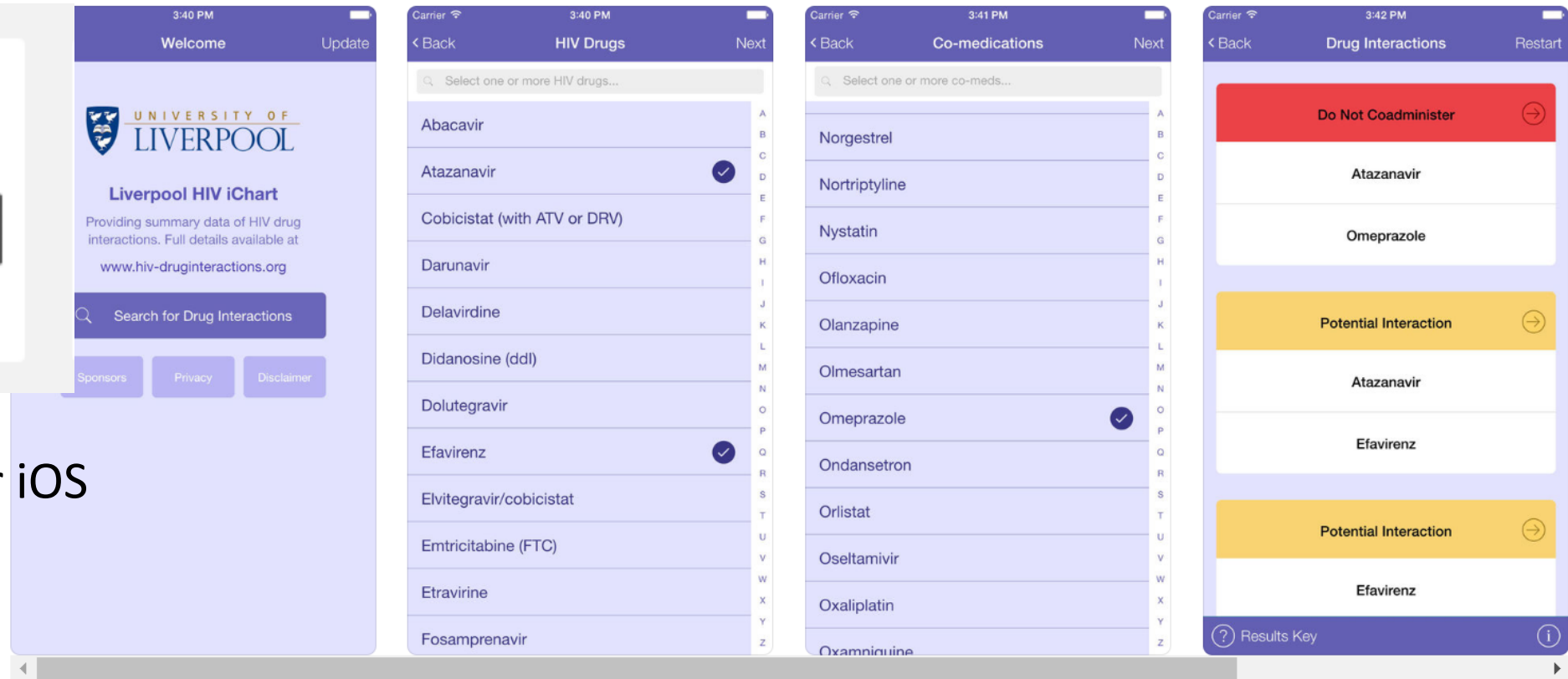
Follow us on Twitter for
interaction news and for the
latest additions and changes to
the website

Mobile Apps



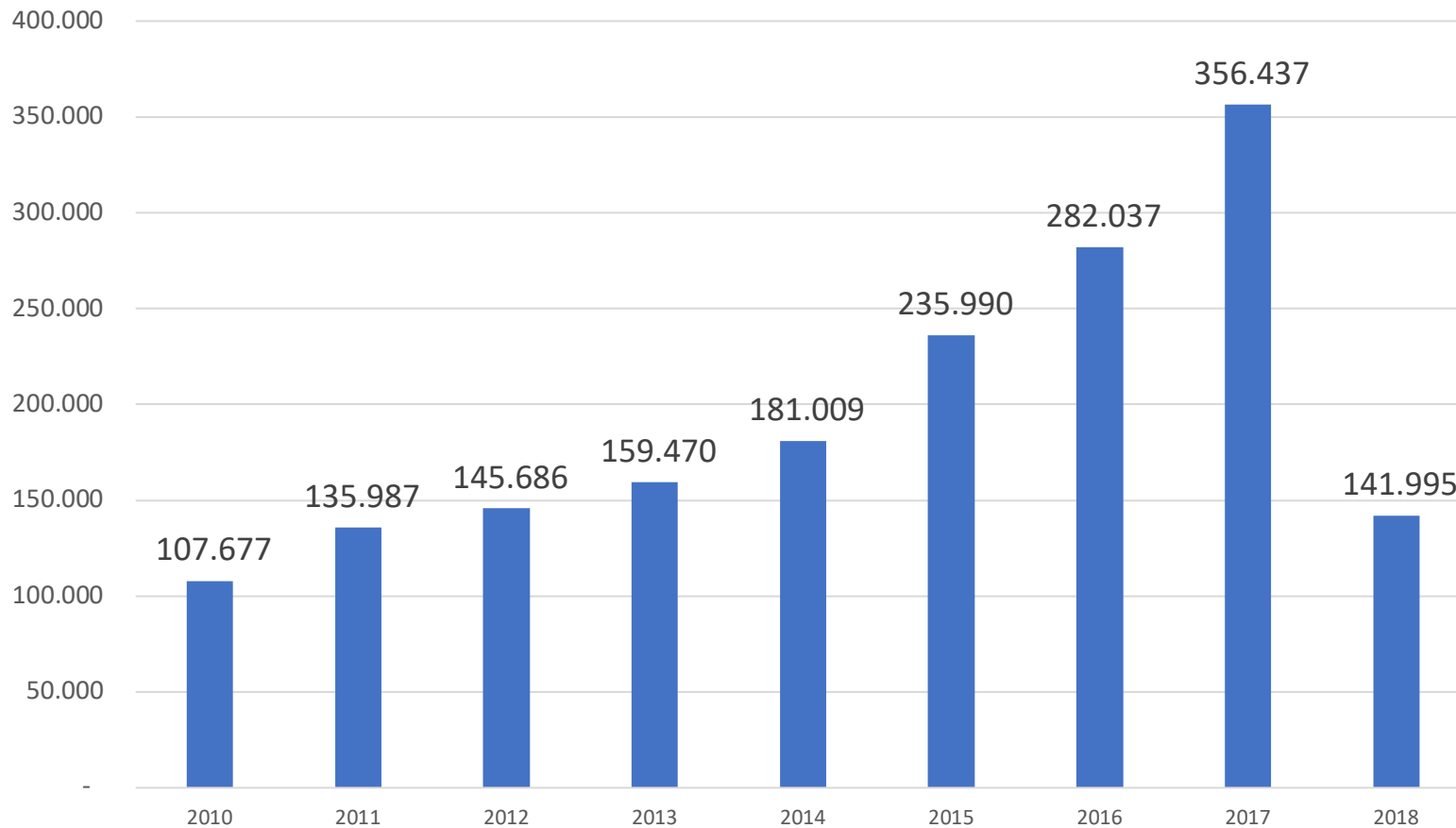


Freely available app for iOS
and Android



How can this be improved?

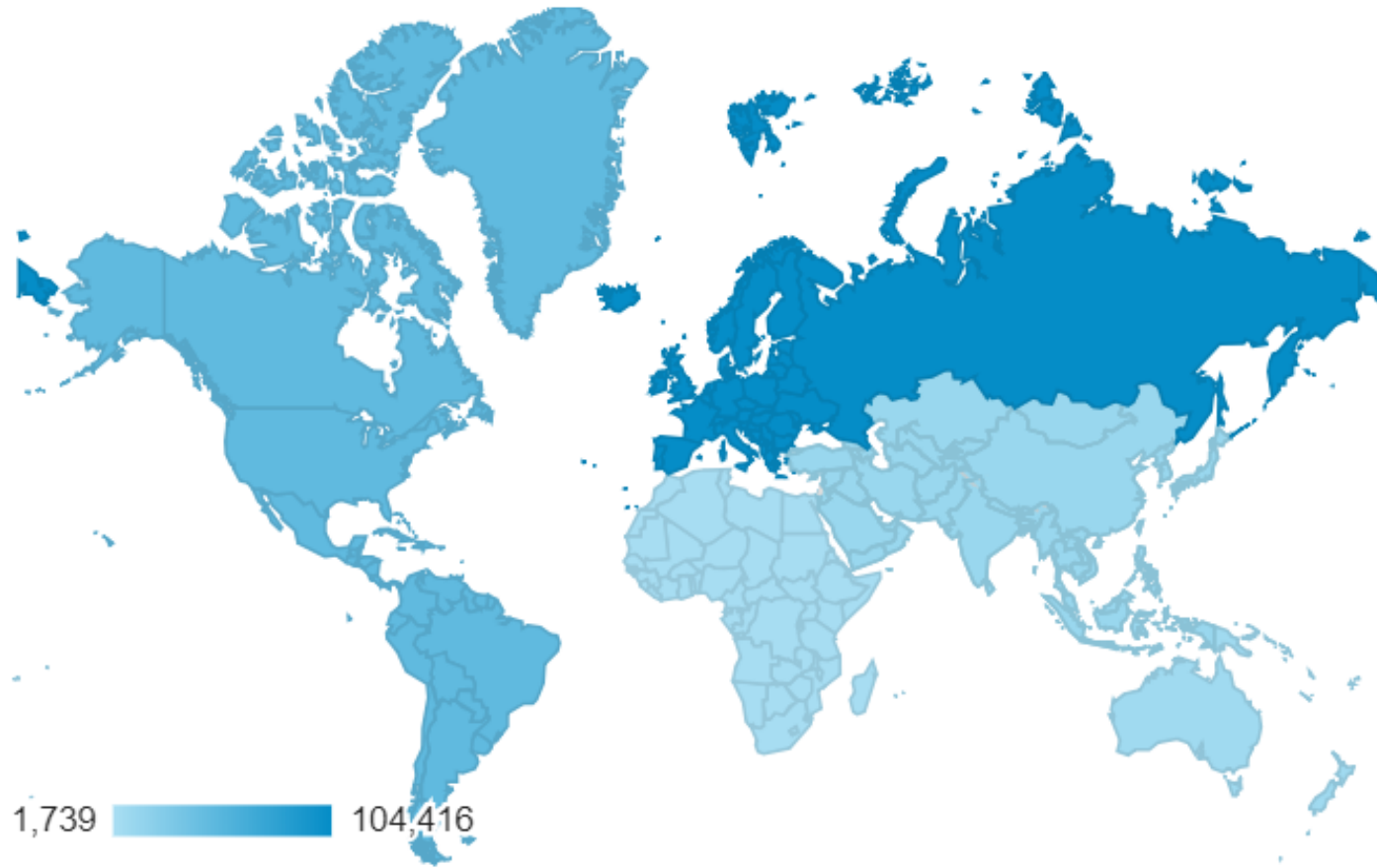
HIV Drug Interactions - Total Site Visits 2010 - April 2018



26% YOY growth
2016 -17

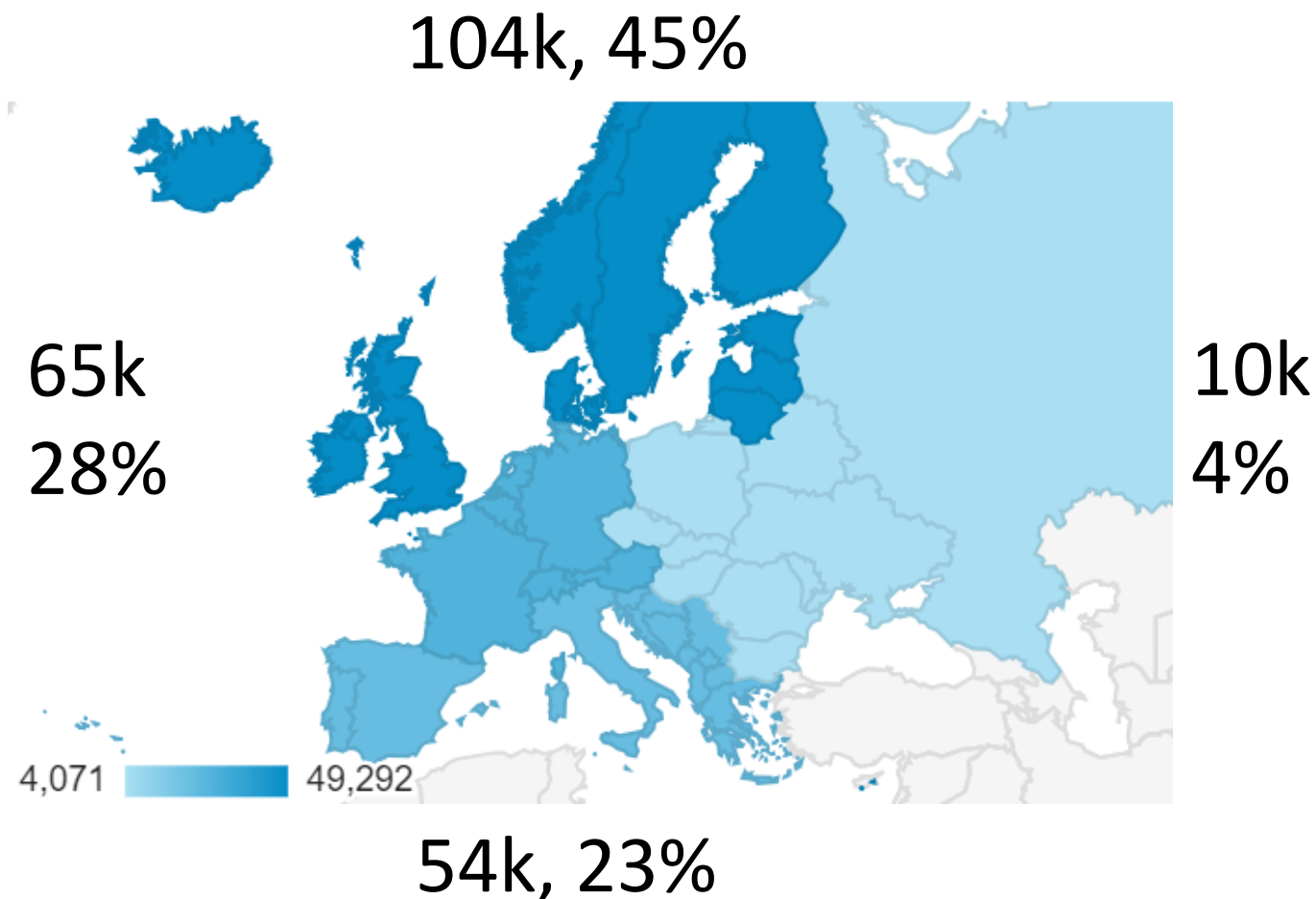
28% projected YOY
growth 2017 -18

Global reach



1.	Europe	233,888	(60.42%)
2.	Americas	103,500	(26.73%)
3.	Asia	23,252	(6.01%)
4.	Oceania	16,991	(4.39%)
5.	Africa	6,031	(1.56%)

In Europe

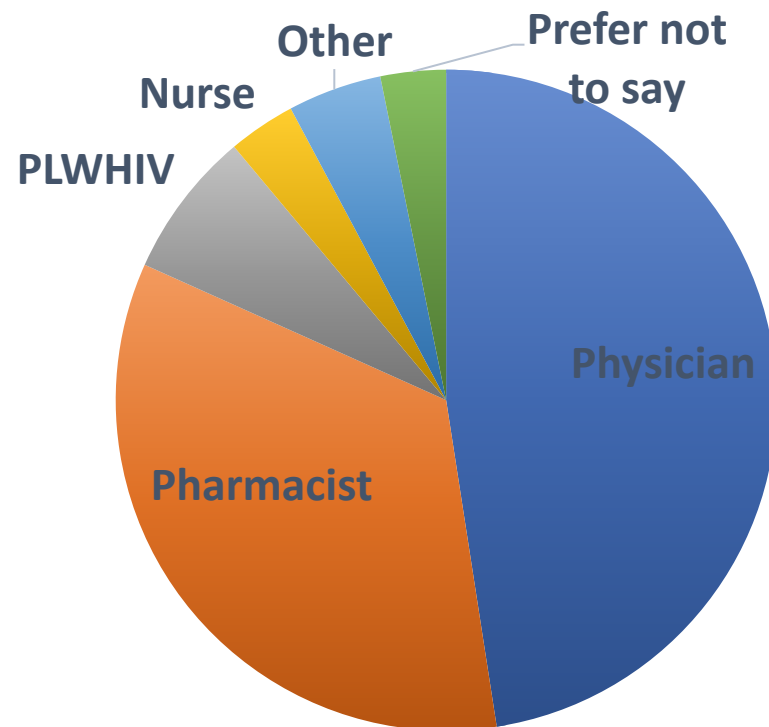


1.	 United Kingdom	92,888 (39.71%)
2.	 Spain	29,266 (12.51%)
3.	 Germany	16,476 (7.04%)
4.	 Italy	15,095 (6.45%)
5.	 France	11,796 (5.04%)
6.	 Switzerland	14,101 (6.03%)
7.	 Netherlands	11,820 (5.05%)
8.	 Belgium	8,487 (3.63%)
9.	 Portugal	6,494 (2.78%)
10.	 Russia	4,482 (1.92%)
20.	 Ukraine	1,114 (0.48%)

Our users

Please help us improve this website by answering one quick question. Are you a... ▾

#	ANSWER	COUNT
A	Physician	2,014 (47.6%)
B	Pharmacist	1,448 (34.2%)
C	Person Living with HIV	305 (7.2%)
D	Nurse	138 (3.3%)
E	Other (please state)	193 (4.6%)
F	Prefer not to say	134 (3.2%)



Over 21,000
monthly
users

Potentially
1,500 PLWHIV

100% PLHIV who had been taught how to use the checker we confident in their ability
67% felt more in control of their diagnosis

89% of PLHIV who didn't know how to use the checker wanted to learn
78% felt the tool would be helpful for personal use.

Should patients be taught how to use the Liverpool HIV drug interaction checker? a pilot service evaluation

Joanne Conway, Final Year Medical Student, University of Sheffield
Dr. Karen Rogstad, University of Sheffield, Sexual Health Sheffield

Background:

The NHS Five Year Plan produced in 2014 aims to support patients in managing their own conditions and the BHIVA 2018 Standards reflects this by involving patients in their care. The Liverpool HIV Drug Interaction Checker website has been in operation since 1999, providing a central location for checking for potential interactions between antiretroviral therapy and other medications. Some Doctors have already begun to show their patients how to use the website. This pilot service evaluation assesses whether patients are aware of the tool, if they use it and if they feel they should be taught how to use it.



Aims and Method:

Aims: To evaluate whether a wider service evaluation should be undertaken which could lead to the development of an online learning tool would help PLHIV

- Questionnaires were given to:**
- 7 PLHIV who had been taught how to use the drug checker
 - 10 PLHIV who had not been taught how to use the drug checker
 - 5 ID/GUM Consultants who ran HIV clinics

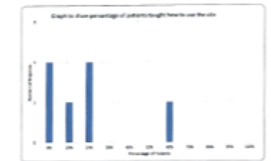
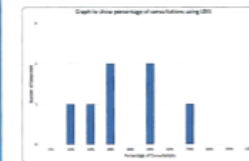
I think it's a good idea as I'm on several other medications

Female, 28

Results:

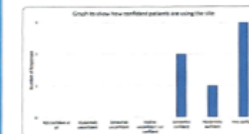
Staff:

Staff are using the site in a normally distributed fashion (n=7), but not showing their patients how to use it (n=6).



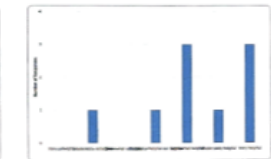
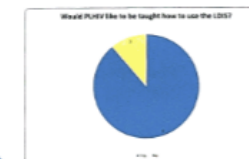
PLHIV who had been taught how to use the checker:

100% PLHIV who had been taught to use the tool were confident in their ability (n=6)
67% PLHIV who had been taught felt more in control of their diagnosis (n=6)



PLHIV who had not been taught how to use the checker:

89% of PLHIV who didn't know how to use LDIS wanted to learn (n = 9)
78% of PLHIV who didn't know would find the tool helpful for personal use (n=9)



Conclusions:

The results of the pilot service evaluation were promising and suggest a wider-scale evaluation would have value. It is important when discussing teaching a PLHIV about the site to consider the negative impacts of having that additional knowledge and potentially the pressure and anxiety it may produce.

- Website feedback form
- Twitter
- Conferences and International meetings
- Editorial Board
- Engagement with PLWHIV, Community and Advocacy groups
 - Charts with PREP, hormone therapy for gender transitioning
 - Russian translation

Discussion

- How do you use the drug interactions checker?
- What do you do if you see a red / amber / yellow / green ?
- Do you use additional resources?
- How can we better achieve our outcomes?
- How should we engage People Living with HIV?
- How can we improve?

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