

Troubleshooting tools in medicines review - PIM-CHECK© training

Interactive part - parallel workshops

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Medicines Review – Needing and Sharing the
Hospital Pharmacist's
EAHP Academy seminar
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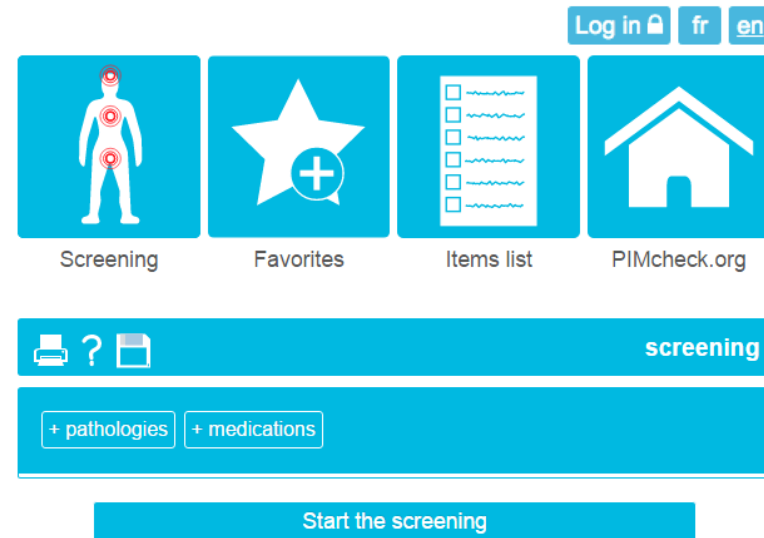
Website



The screenshot shows the website's header with social media icons (Facebook, Twitter, LinkedIn, Google+), the PIMCheck logo, and logos for HUG (Hôpitaux Universitaires Genève) and Université de Genève. A navigation menu includes links for 'As a preamble', 'Introduction', 'References and resources', 'Publications and Communications', 'They talk about', 'Who Are We?', and 'Contact'. Below the menu are buttons for 'Get to the English app version' and 'Accéder à l'application'. A trophy icon and text announce the PIM-Check winner of the 'Trophées de la e-santé' prize in the student category (2016). The main content area is titled 'As a preamble' and contains text describing the PIM-Check tool, its development by a multidisciplinary panel of experts, and the methodology used for its development. It concludes by stating that the website is dedicated to healthcare professionals and does not replace their judgment.

www.pimcheck.org/en/

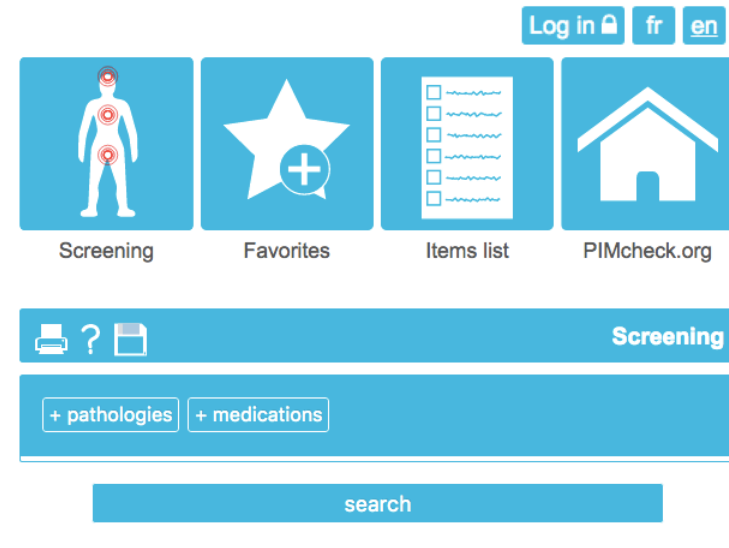
Webmobile application



The screenshot shows the mobile application interface. At the top right, there are 'Log in' and language selection buttons for 'fr' and 'en'. Below this is a row of four main navigation icons: a human figure with red circles indicating screening points, a star with a plus sign for favorites, a list of items for the items list, and a house icon for the PIMcheck.org home page. Below these icons are labels: 'Screening', 'Favorites', 'Items list', and 'PIMcheck.org'. A secondary bar contains a printer icon, a question mark, a folder icon, and the word 'screening'. Below this bar are two buttons: '+ pathologies' and '+ medications'. At the bottom, a large blue button reads 'Start the screening'.

app.pimcheck.org





Webmobile application



app.pimcheck.org

4 Kind of DRPs

1. Over-Prescriptions

OP	CARDIOLOGY
	Drugs that may exacerbate heart failure
	Avoid prescribing drugs* that may exacerbate HF, drugs that are rich in sodium** and antiarrhythmics (except for digoxin and amiodarone) in heart failure patients
	
	Rationale
	Risk of sodium and water retention, HF exacerbation, increased risk of hospitalisation for HF and sudden death.
	Remarks
	<ul style="list-style-type: none">*<u>Non-exhaustive list of drugs that may exacerbate HF</u>: NSAIDs (except low-dose aspirin) and COX2-inhibitor: by hydro-sodium retention, antiarrhythmic drugs (except digoxin and amiodarone), tricyclic antidepressants, carbamazepine, corticosteroids (oral or inhaled), glitazones, and calcium inhibitors (except amlodipine and felodipine): by negative inotropic effects, moxonidine, and sotalol.** <u>Non-exhaustive list of sodium-rich drugs</u>: sodium alginate, bicarbonate, diphosphate, effervescent drugs, fosfomycin, penicillins, phosphate, piperacillin, salicylate.
	References
	<ul style="list-style-type: none">• ESC 2016 : Acute and Chronic Heart Failure• ACCF/AHA 2013 : Guideline for the Management of Heart Failure• BMJ 2013 : cardiovascular events and sodium containing effervescent, dispersible, and soluble drugs





4 Kind of DRPs

2. Under-prescriptions

UP	CARDIOLOGY
★	Dyslipidaemia, hypercholesterolaemia: start statins as a 1st-line treatment
□	Prescribe statins as a 1st-line treatment in case of mixed dyslipidaemia or hypercholesterolaemia when pharmacological treatment is necessary*
🖨	
	Rationale
←	Prevention of heart disease. Allows a decrease in the <u>LDL-c</u> and triglycerides and an increase in the <u>HDL-c</u> .
	Recommendations
	<ul style="list-style-type: none">• Dosage : *<u>Maximum suggested dosing regimens</u> : maximum tolerated dose making it possible to achieve the target <u>LDL-c</u> level, based on the cardiovascular risk (*see item 5).
	References
	<ul style="list-style-type: none">• <u>CCSG 2012 : Diagnosis and Treatment of Dyslipidemia for the Prevention of Cardiovascular Disease in the Adult</u>• <u>ACC/AHA 2013 : Treatment of Blood Cholesterol to Reduce Atherosclerotic Cardiovascular Risk in Adults</u>• <u>ESC 2011 : Dyslipidaemias (Management of)</u>

4 Kind of DRPs

3. Drug-Drug interactions

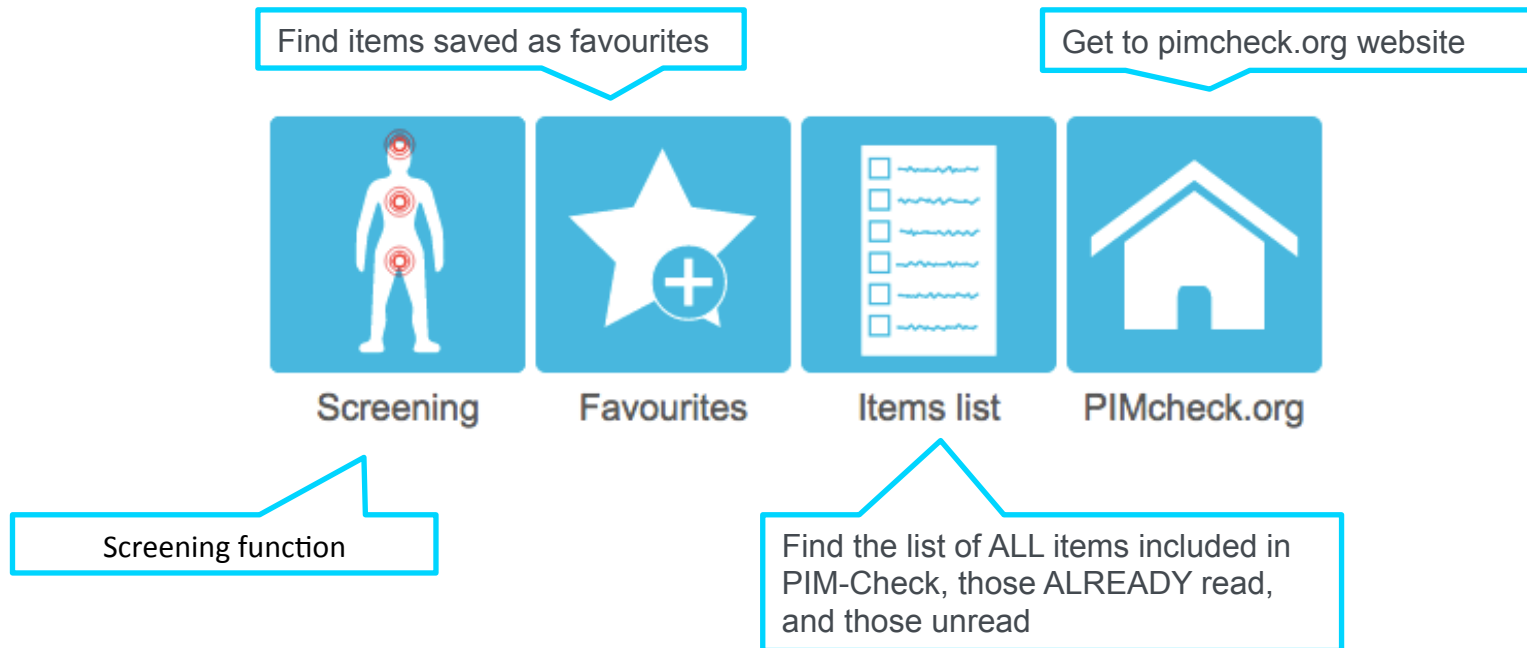
DDI	NEUROLOGY
	Anti-epileptic and DDI
	Evaluate the risk of <u>DDI</u> , and adjust the treatment if a new treatment is introduced in patients receiving anti-epileptics (in particular with <u>CYP</u> and/or <u>Pgp</u> inducers/inhibitors*)
	
	Rationale
	Anti-epileptics (except gabapentin, pregabalin, vigabatrin and levetiracetam), at least partially, undergo hepatic metabolism. Some anti-epileptics are enzyme inducers or inhibitors. Risk of toxicity, imbalance or ineffectiveness of various treatments.
	Recommendations
	<ul style="list-style-type: none">• Alternative : Favour a therapeutic alternative or propose a therapeutic drug concentration monitoring of the anti-epileptics and/or associated treatments.
	Remarks
	<ul style="list-style-type: none">• <u>Enzyme-inducing anti-epileptics</u>: carbamazepine, lacosamide, lamotrigine, oxcarbazepine, phenytoin, primidone, topiramate, zonisamide. <p><u>Enzyme-inhibiting anti-epileptics</u>: valproic acid, topiramate, felbamate.</p>
	Useful links
	<ul style="list-style-type: none">• *HUG 2014 : Drug-drug interactions, cytochromes P450 et P-glycoprotein (In French)
	References
	<ul style="list-style-type: none">• ILAE 2008 : Antiepileptic drugs best practice guidelines for therapeutic drug monitoring• Patsalos P. et al. The importance of drug interactions in epilepsy therapy. Epilepsia 2002

4 Kind of DRPs

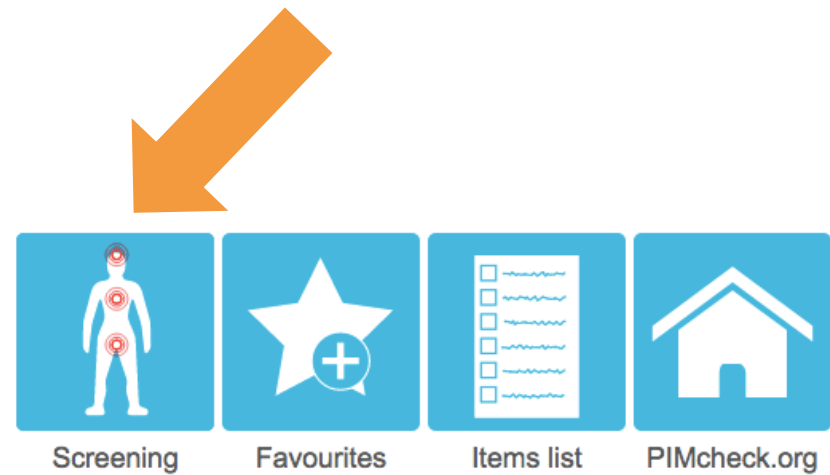
4. Others

OTH	OBESITY
★	Obese patients: increase doses of injectable antithrombotic agents (LMWH/heparin/fondaparinux)
□	Increase the doses of heparin or fondaparinux in obese patients requiring antithrombotic treatment
🖨️	
←	Rationale Obesity is a risk factor for venous thromboembolism.
Recommendations	
<ul style="list-style-type: none">• Dosage : <u>Daily suggested dosing regimen</u>: Use the total body weight to determine the doses to be administered.	
<u>Prophylactic treatment</u> : increase the dosing regimens by 30% if body mass index (BMI) ≥ 40 kg/m ² .	
<u>Curative treatment</u> : subcutaneous administration (adapt the needle size) of enoxaparin BID and unfractionated heparins TID. Monitor anti-Xa activity for patients with BMI ≥ 40 kg/m ² .	
<u>Fondaparinux recommended dose in patients over 100 kg with venous thromboembolism</u> : 10 mg QD, administered subcutaneously.	
References	
<ul style="list-style-type: none">• Nutescu E.et al. Low-Molecular-Weight Heparins in Renal Impairment and Obesity: Available Evidence and Clinical Practice Recommendations Across Medical and Surgical Settings. Ann Pharmacother 2009• ACCP 2012 : Antithrombotic Therapy and Prevention of Thrombosis (9th Edition)• ACCP 2008 : Prevention of Venous Thromboembolism (8th Edition)	

Functions



Let's start to use it !



[http://app.pimcheck.org/#/
recommandations/recherches/screening](http://app.pimcheck.org/#/recommandations/recherches/screening)

Clinical case

Mr X, 65years old

✧ **Admission pattern**

- ✧ Cough, fever
- ✧ Respiratory depression
- ✧ Confusional state

✧ **Medical diagnostic**

- ✧ Community acquired pneumonia

✧ **Past medical history**

- ✧ Type 2 diabete mellitus
- ✧ High blood pression
- ✧ Persistent atrial fibrillation

✧ **Physical examination**

- ✧ Fever, tachycardia
- ✧ BP : 152/88
- ✧ Weight : 99.5kg

✧ **Laboratory test results**

- ✧ eGFR: 37ml/min/1.73m²
- ✧ White blood cells: 44.5
- ✧ CRP: 344
- ✧ Total cholesterol: 5.4mmol/L,
- ✧ HDLc : 1.3mmol/L

Current treatment :

Atenolol 50 mg – QD
Losartan 100 mg – QD
Rivaroxaban 20 mg – QD
Clarithromycin 500 mg – BID – 15 days
Augmentin 1.2g – QID – until further
Insulin aspart according to blood-sugar level – TID
Insulin degludec 35UI – QD

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Over-prescriptions

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Insulin aspart according to blood-sugar level – TID
Insulin degludec 35UI – QD

Under-prescriptions

Interactions

Other PIMs

Clinical case

Mr X, 65years old

✧ Admission pattern

- ✧ Cough, fever
- ✧ Respiratory depression
- ✧ Confusional state

✧ Medical diagnostic

- ✧ Community acquired pneumonia

✧ Past medical history

- ✧ Type 2 diabete mellitus
- ✧ HBP
- ✧ Persistent atrial fibrillation

✧ Physical examination

- ✧ Fever, tachycardia
- ✧ BP : 152/88
- ✧ Weight : 99,5kg

✧ Laboratory test results

- ✧ eGFR: 37ml/min/1.73m²
- ✧ White blood cells: 44,5
- ✧ CRP: 344
- ✧ Total cholesterol: 5,4mmol/L,
- ✧ HDLc : 1,3mmol/L

Current treatment :

- Rivaroxaban dose adjusted
- Check influenza/
pneumococcal vaccinations

- + HbA1c ?
- Restart metformin ?
- Start statins, calcium/Vitamin D ?

Atenolol 50 mg – QD
Losartan 100 mg – QD
Rivaroxaban ~~20~~ 15 mg – QD
Clarithromycin 500 mg – BID – 7 days
Augmentin 1.2g – QID – 7 days
Insulin aspart according to blood-sugar level – TID
Insulin degludec 35UI – QD

+ modification of the term of
antibiotics
+/- stopping clarithromycin

THANK YOU FOR YOUR ATTENTION



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