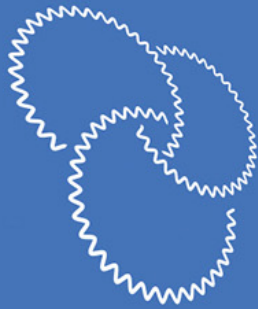


EXPANDED MANDATE: MEDICINES PATENT POOL FOR ESSENTIAL MEDICINES

***KEY FINDINGS OF THE FEASIBILITY
STUDY FOR EXPANSION OF THE MPP
INTO PATENTED ESSENTIAL
MEDICINES***

24 September 2018

1. Introduction to the Medicines Patent Pool
2. Exploring expansion into patented essential medicines
3. Next steps



medicines
patent
pool

INTRODUCTION TO THE MEDICINES PATENT POOL

THE MEDICINES PATENT POOL

Created in 2010 to increase **access** to quality-assured, affordable medicines for **HIV** in low- and middle-income countries...

...and to facilitate the **development of new formulations** needed in resource-limited settings (e.g. paediatrics, combinations)

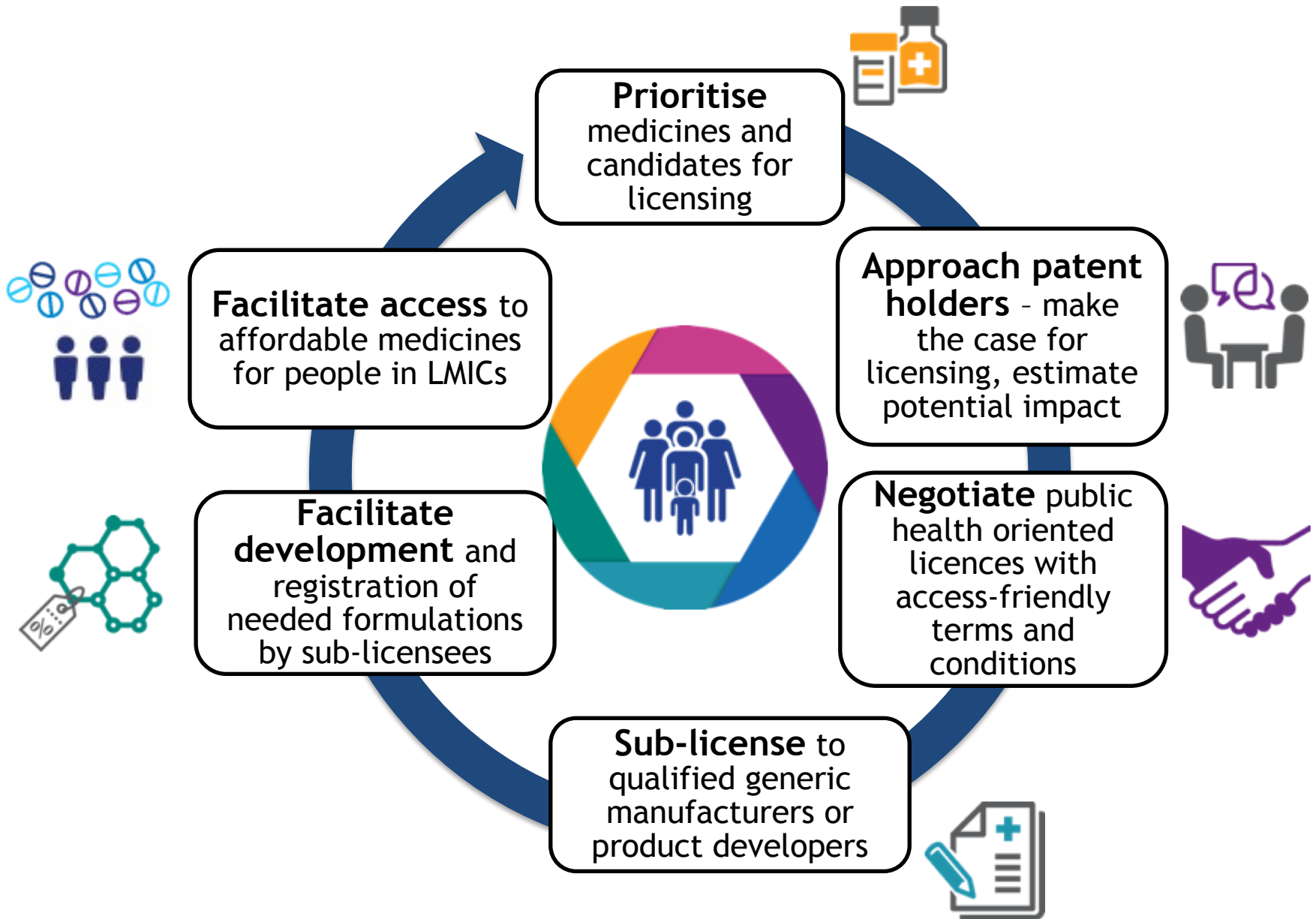
First patent pool in public health. Operates through **public health voluntary licences** with patent holders and manufacturers

Endorsed by WHO, the UN High Level Meeting on AIDS and G7 as a promising and **innovative public health approach**

Expanded in 2015 to include **hepatitis C** and **tuberculosis**



MPP's HIV, Hepatitis C
and TB activities are
funded by Unitaid



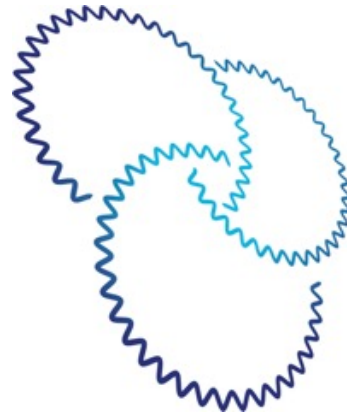
BENEFITING ALL STAKEHOLDERS

Patent holders

Effective way to make available innovative products in resource poor settings; licence management to ease transaction costs

Low-cost producers

Simplified approach to the development of affordable versions of existing medicines, create needed new formulations



Treatment providers and donors

An ability to stretch budgets to treat more people with WHO-recommended medicines

Communities

To gain greater access to quality, appropriate, affordable and life-saving treatments

KEY MPP ACCOMPLISHMENTS IN HIV/HCV/TB



13 HIV medicines
and **1** HIV platform
technology licensed



130+
ongoing pharmaceutical
development projects



2 hepatitis C
direct-acting
antivirals



17 million
patient-years
of treatments delivered
through MPP's generic
partners



1 tuberculosis
drug candidate



535 million
US dollars saved. **2.3** billion
expected from already
negotiated HIV licences *

PARTNERSHIPS WITH INNOVATORS

abbvie

- Lopinavir
 - Ritonavir
- (seperate licences-
adults and paediatrics)

 Bristol-Myers Squibb

- Atazanavir
- Daclatasvir (HCV)

 Boehringer
Ingelheim

- Nevirapine (non-
assert)

 UNIVERSITY OF
LIVERPOOL

- Solid dispersion
nanotechnology
for HIV

 GILEAD

- Bictegravir
- Cobicistat
- Elvitegravir
- Emtricitabine
- Tenofovir Alafenamide
- Tenofovir Disoproxil

Janssen 

- Darunavir (peadiatric
non-assert)

 MSD
Be well

- Raltegravir
(paediatric)

Roche

- Valganciclovir
(pricing
agreement)

 ViiV
Healthcare

- Abacavir (paediatric)
- Dolutegravir
(paediatric)
- Dolutegravir (adults)

NIH 

- Darunavir related

 JOHNS HOPKINS
UNIVERSITY

- Sutezolid (TB)

 PHARCO
PHARMACEUTICALS

- Ravidasvir
(HCV)

PARTNERSHIPS WITH SUB-LICENSEES


AUROBINDO


BC


BEXIMCO PHARMA here's to life


Cipla


adcock ingram


DESANO


Emcure
SUCCESS THROUGH INNOVATION


HETERO HETERO


华海药业
HUAHAI PHARMACEUTICAL


Arene Lifesciences
Limited


LAURUS Labs


LUPIN
PHARMACEUTICALS, INC.


MACLEODS


MICRO LABS


LOOV 浙江朗华制药有限公司
ZHEJIANG LANGHUA PHARMACEUTICAL CO.,LTD.


Mylan®


NATCO


Dr.Reddy's


SANDOZ


MANGALAM

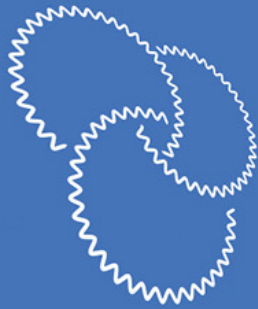

Strides
ARCOLAB LIMITED


SUN
PHARMA


TB ALLIANCE


Zydus


CELLTRION



medicines
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pool

EXPLORING EXPANSION INTO PATENTED ESSENTIAL MEDICINES

- In 2016, the **World Health Organization (WHO)** recommended that consideration be given to:

“the expansion of the MPP to [...] all patented essential medicines on the WHO EML (Essential Medicines List).”
- Similar recommendation made by the **Lancet Commission on Essential Medicines Policies**
- **GlaxoSmithKline** mentioned intention to license essential medicines for lower middle-income countries and to include cancer pipeline in patent pool
- **UK AMR Review** and other reports proposed role for MPP in relation to new antibiotics
- The MPP received funding from the **Swiss Agency for Development and Cooperation** to undertake a feasibility study

THE MPP AND THE WHO ESSENTIAL MEDICINES LIST

MPP already has licences on 13 medicines included in the WHO EML; plus a special access agreement on 1.

Medicines licensed to the MPP	Year of MPP agreement
Abacavir (ABC) (paediatrics)	2013
Abacavir/lamivudine (ABC/3TC)	2013
Atazanavir (ATV)	2013
Atazanavir/ritonavir (ATV/r)	2013/2015
Daclatasvir (DCV)	2015
Dolutegravir (DTG)	2014
Lopinavir/ritonavir (LPV/r)	2015
Raltegravir (paed.) (RAL)	2015
Ritonavir (RTV)	2015
Tenofovir disoproxil fumarate (TDF)	2011
TDF/FTC (treatment and PrEP)	2011
TDF/FTC/EFV and TDF/3TC/EFV	2011/2015
Valganciclovir * (special access agreement)	2013

MEDICINES RECENTLY ADDED TO WHO EML WITH PATENTS AT TIME OF ADDITION (EXCLUDING HIV, HCV, TB AND VACCINES)

Medicine	Indication(s)
Artemether-lumefantrine	Malaria
Bendamustine	Cancers of the blood
Bevacizumab	Macular degeneration
Dasatinib	Leukaemia
Entecavir	Hepatitis B
Etonorgestrel impant	Contraceptive
Imatinib	Leukaemia
Nilotinib	Leukaemia
Omeprazole	Gastrointestinal reflux disease
Oseltamivir	Influenza
Progesterone vaginal ring	Contraceptive
Rituximab	Various cancers, rheumatoid arthritis
Tenofovir disoproxil fumarate	Hepatitis B
Trastuzumab	Breast cancer
Ulipristal acetate	Emergency contraceptive
Valganciclovir	Citomegalovirus retinitis (CMVr)
Zoledronic acid	Malignancy-related bone disease

WHO EML is updated every two years: MPP study needed to consider current list and medicines with **potential for future inclusion**

Focus on **5 categories** of products, as per Committee assessments:

1. *Patented medicines **currently included** in the WHO EML*
2. *Patented medicines that WHO Committee considered as likely having **relevant clinical benefits** but **needing additional data***
3. *Patented medicines having **clinical benefits** but did not meet the WHO Committee's **comparative cost-effectiveness** criterion (at current prices)*
4. *Patented Medicines needing a **therapeutic area review** by a separate working group prior to reconsideration at next EML*
5. *New **antibacterials to combat AMR**: recently approved or currently under development*

For each category, the feasibility study focused on a **case study** to explore public health needs and potential role for the MPP.

OVERVIEW OF AREAS COVERED BY THE FEASIBILITY STUDY

Categories	Case studies
1. Patented medicines included in the WHO EML	<i>Medicines for chronic myeloid leukemia</i>
2. Patented medicines with likely relevant clinical benefits but needing additional data	<i>New oral medicines for type 2 diabetes</i>
3. Patented medicines with clinical benefits , not meeting comparative cost-effectiveness criteria	<i>Novel oral anticoagulants (NOACs)</i>
4. Medicines needing a therapeutic area review by a separate working group	<i>Medicines for breast, lung and prostate cancer, and multiple myeloma</i>
5. New antibacterials : recently approved or currently under development	<i>New antibiotics</i>

Case studies are for illustrative purposes only. MPP would need to undertake detailed prioritization in consultation with WHO and other stakeholders prior to selecting possible medicines for licensing

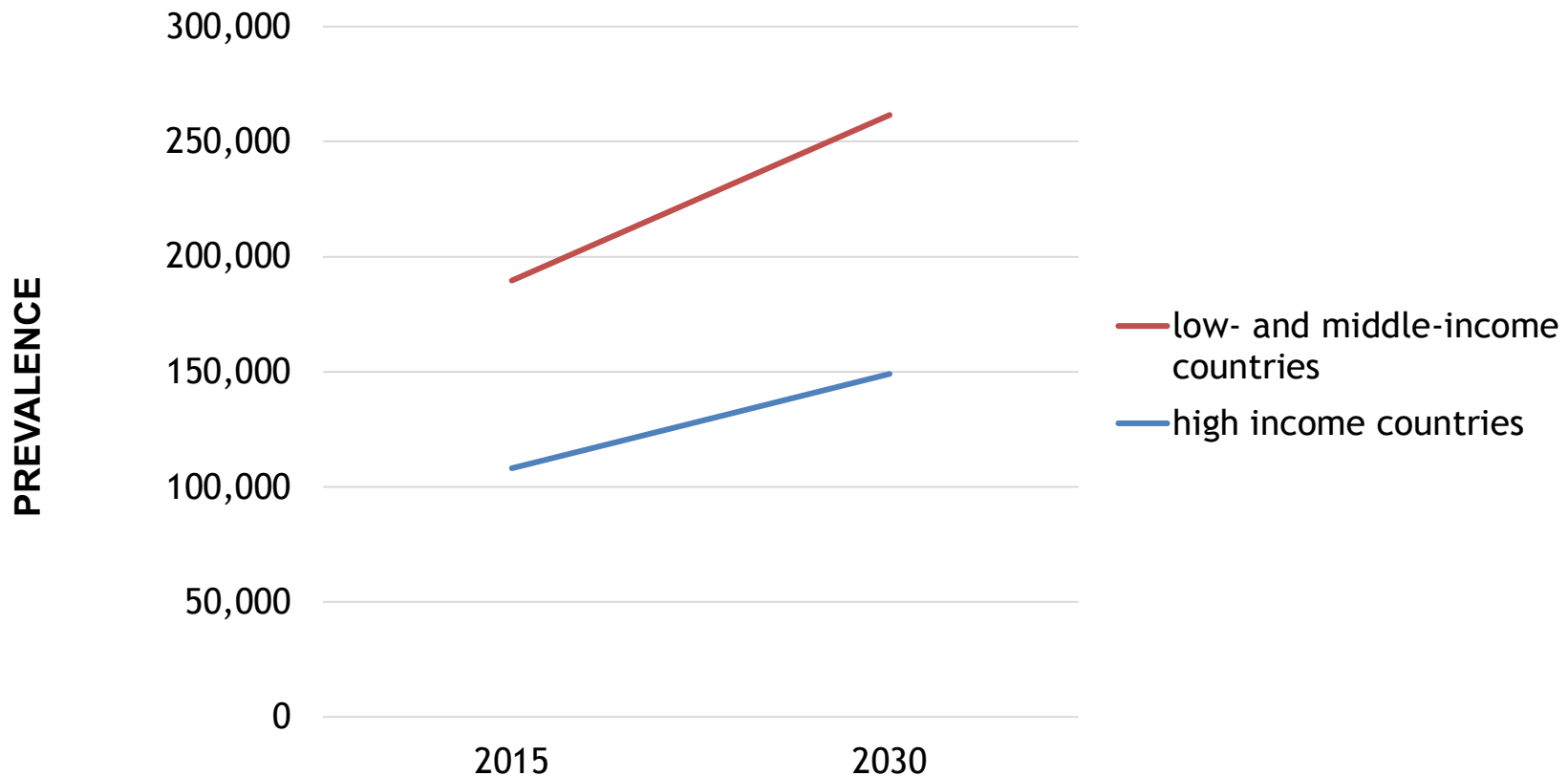
WHO EML REVIEW OF MEDICINES FOR CHRONIC MYELOID LEUKAEMIA

“Nilotinib and dasatinib have been demonstrated to be valid treatment options for use in patients with chronic myeloid leukemia and imatinib resistance. Considering all relevant clinical outcomes, the Committee accepted that there is a relevant clinical benefit [...] in patients with otherwise very limited treatment options”

- WHO Expert Committee 2017

BURDEN OF CHRONIC MYELOID LEUKAEMIA IN LMICS

As for many targeted therapies for cancer, prevalent population is relatively limited. But treatments are highly effective and for long-term use.



2. CASE STUDY ON PATENTED MEDICINES THAT WHO COMMITTEE CONSIDERED AS HAVING RELEVANT CLINICAL BENEFITS BUT NEEDING ADDITIONAL DATA

REVIEW OF MEDICINES FOR TYPE 2 DIABETES

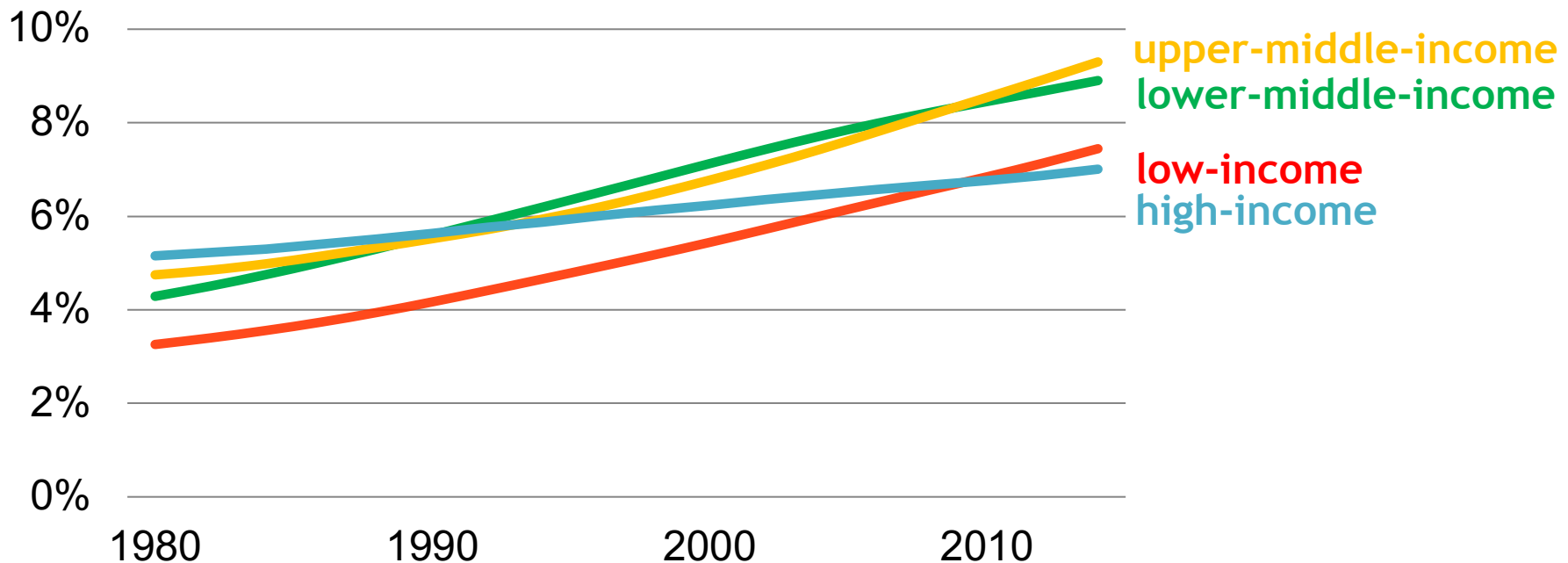
*“Of the second line therapies considered, the Committee noted that **SGLT 2 inhibitors** have shown a **relevant clinical benefit** as second-line therapy in patients at high risk of cardiovascular events, with a **reduction in overall mortality**. ... This finding needs to be confirmed in other trials, prior to selectively supporting this class of medicines in patients with type 2 diabetes.”*

– WHO Expert Committee 2017

BURDEN OF DISEASE FOR TYPE 2 DIABETES IN LMICS

Type 2 diabetes makes up >90% of all diabetes and disproportionately affects LMICs (graph).

Diabetes prevalence (% of population affected) by income group



3. CASE STUDY ON PATENTED MEDICINES WITH CLINICAL BENEFITS, NOT MEETING COMPARATIVE COST EFFECTIVENESS CRITERIA

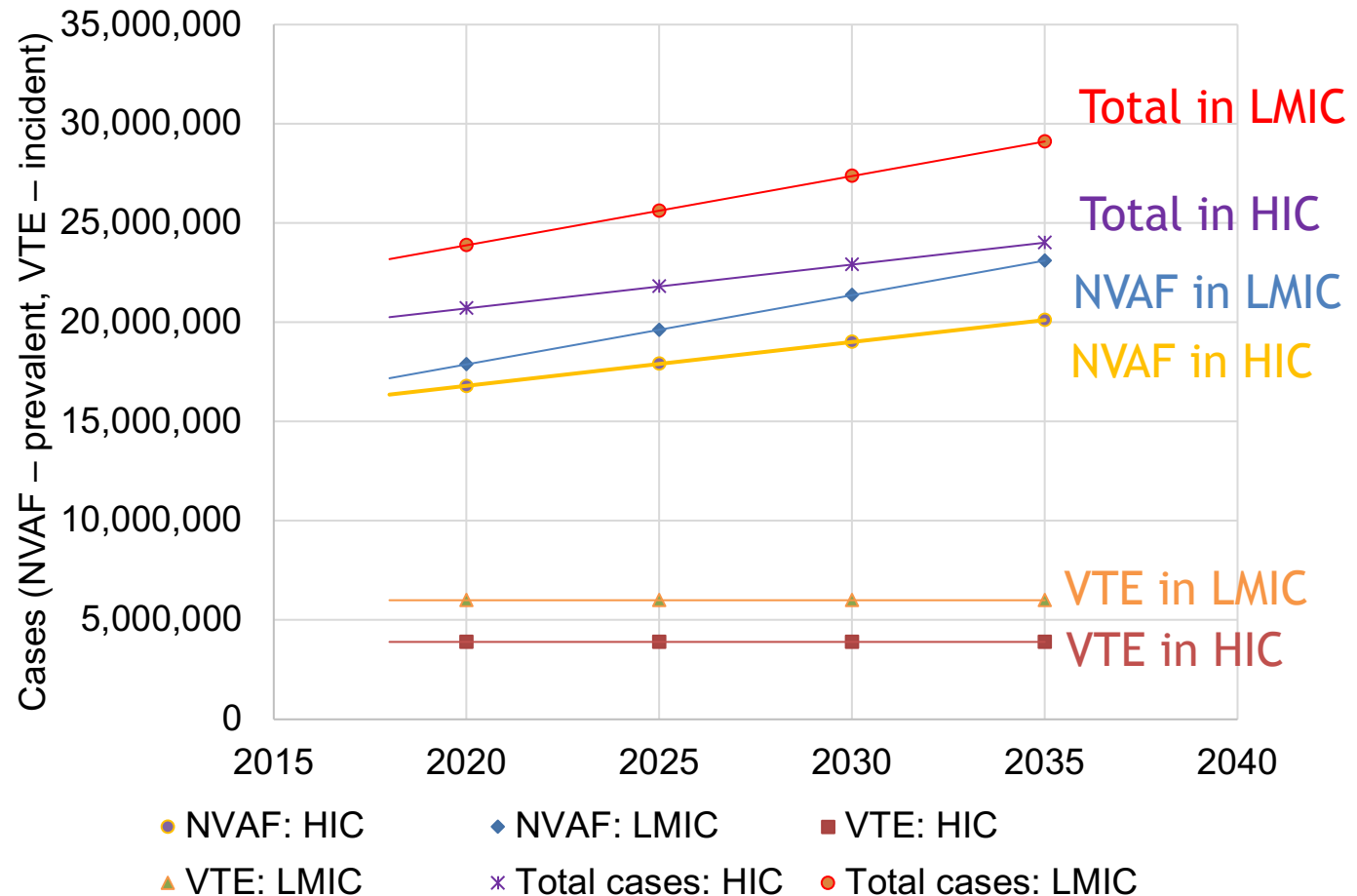
REVIEW OF NOVEL ORAL ANTICOAGULANTS (NOACS)

*“Evidence indicates a **favourable, overall clinical benefit** of the NOACs over warfarin [but] the Committee acknowledged that the **large difference in costs** between NOACs and warfarin was **disproportional to the observed incremental benefit.**” ...“Despite some cost-effectiveness analyses suggesting that the NOACs are “cost-effective”, replacing warfarin with an NOAC will require **significant investment of a country’s health-care funds**”*

– WHO Expert Committee 2015

DISEASE BURDEN FOR ATRIAL FIBRILLATION AND VENOUS THROMBOEMBOLISM

Projected prevalence of non-valvular atrial fibrillation (NVAF) and venous thromboembolism (VTE)



NVAF: Linear regression using GBD 2016 data and assuming 60% of atrial fibrillation cases are non-valvular.
 VTE: Jha et al. BMJ Qual Saf 2013.

4. MEDICINES TO BE RE-CONSIDERED FOLLOWING WORK OF EML CANCER WORKING GROUP

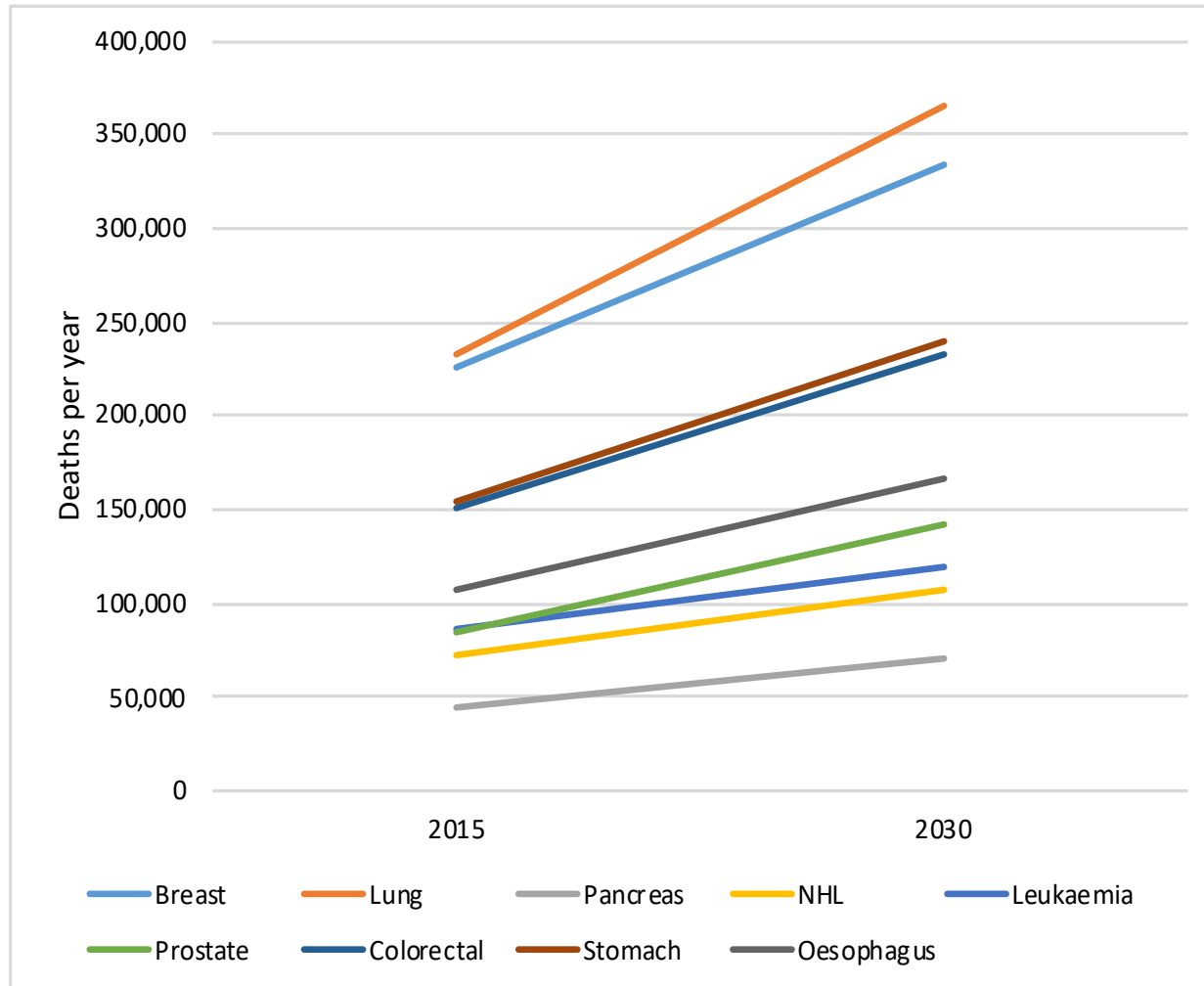
REVIEW OF SUBMISSIONS FOR CANCER MEDICINES

The Expert Committee, in relation to second-line cancer treatments, "recommended the establishment of an EML cancer medicines working group to coordinate comprehensive evaluation of cancer medicines for the EML [and] support WHO in establishing some guiding principles [to clarify] what constitutes a clinically relevant therapeutic effect"

WHO Expert Committee 2017

Medicine	Indication
T-DM1	Breast cancer
Pertuzumab	Breast cancer
Lapatinib	Breast cancer
Erlotinib	Lung cancer
Afatinib	Lung cancer
Gefitinib	Lung cancer
Crizotinib	Lung cancer
Enzalutamide	Prostate cancer
Abiraterone	Prostate cancer
Lenalidomide *	Multiple myeloma

Mortality from selected cancers in low income, lower-middle income countries, and Sub-Saharan Africa



5. MPP AS A MECHANISM TO PROMOTE ACCESS AND STEWARDSHIP FOR NEW ANTIBIOTICS

WHO's 2017 Essential Medicines List introduced a categorization for antibacterials into three groups:

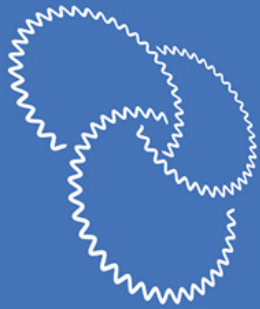
- **Access:** Should be widely available and affordable.
- **Watch:** Should be prioritized as key targets of stewardship programs.
- **Reserve:** to be used mainly as “last resort”.

Depending on category of new antibiotic, MPP could negotiate and monitor compliance of appropriate terms for **access** and **stewardship**. For example:

- Careful selection of licensees (type, number)
- Strict quality provisions
- Controls on manufacturing effluents
- Types of purchasers allowed (e.g. public/private; tertiary care centers)
- Controls on marketing practices
- Affordability provisions where the access to the drug is likely to be restricted (e.g. “watch” or “reserve” EML categories)

- Substantial **public health needs** in LMICs for some products analyzed
- Some of the products are either **not available or only accessible** to few in LMICs; mainly in the private markets/out-of-pocket
- **Limited commercial markets** in many of the LMICs studied and could be opportunities for **win-win solutions, e.g. with appropriate royalties**
- Constrained **health system infrastructure** and **lack of donor funding** could be significant challenges
- Broader efforts to improve screening, testing, treatment and care for NCDs will be crucial for licences to lead to access
- Specific challenges in the field of **biologics** (e.g. regulatory)
- In AMR, MPP could play a role to support **stewardship** efforts for new antibiotics for priority pathogens, while facilitating **access**

- **Strong case for MPP to expand** its mandate
- Patented medicines added to the **WHO EML** at each revision could be natural candidates for in-licensing
- Medicines that are not added due to **affordability** or that have **strong potential for future inclusion** could also be considered.
- Should remain **flexible to explore opportunities** where high **public health needs** in LMICs and **patent holder willingness to engage**
- MPP could focus initially on licensing of **small molecules**, given greater complexity in biologics
- Work with patent holders to build confidence in model and find **win win solutions**
- **Partnerships** with governments / CS and others will be key for access
- Suitable **regulatory pathway** for MPP licensed medicines will be key



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NEXT STEPS

- At 2018 World Health Assembly strong support for MPP expansion from multiple Member States
- Two documents recommended such expansion:
 - *“Support expansion of the Medicines Patent Pool to include **all antimicrobial medicines and patented medicines on the WHO Model List of Essential Medicines.**”* (Document A71/12; page 3)
 - *“Member States and other funders, with WHO Secretariat support, to strengthen the MPP, which may include support for the expansion of its portfolio to cover **other diseases or technologies where the MPP model can have the most impact**”* (Indicator: Number of diseases and/or technologies covered by the Medicines Patent Pool’s portfolio and amount of funding committed by new donors by 2020.) (Document A71/13 page 6)

The MPP Board agreed to expand the mandate of the Medicines Patent Pool to treatment areas beyond HIV, Hepatitis C and TB.

*“The Board notes that the MPP should make a **phased expansion**, initially into **small molecules** listed in the **WHO Model List of Essential Medicines** as well as medicines with **strong potential for future inclusion** in view of their clinical benefits and potential for public health impact in low and middle-income countries.”*

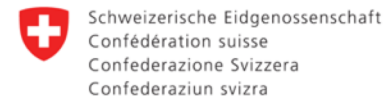


- **Prioritization of candidate health technologies for licensing:** by building a robust framework in consultation with key stakeholders:
 - WHO et al to identify products with greatest potential
 - Patent holders to assess opportunities
 - Generic manufacturers to understand need for licence
 - Other stakeholders (governments, CS) to understand needs, access gaps and likelihood of licences resulting in impact
 - Other experts to contribute expertise in new therapeutic areas, markets, etc.
- **Continue exploratory work in AMR:** to further flesh out potential role for MPP in supporting access and stewardship in relation to new antibiotics

General acknowledgements for the study:

- MPP colleagues and consultants
- Members of the Steering Group
- Authors of national background papers
- Peer reviewers
- Dozens of people interviewed or who shared their expertise from government, industry, civil society, medical community, etc.

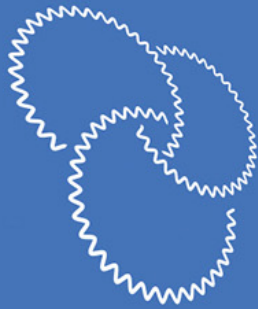
The feasibility study exploring expansion into patented essential medicines was developed with the financial support of the Swiss Agency for Development and Cooperation:



Swiss Agency for Development
and Cooperation SDC

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