Financial Impact of Medicines Patent Pool: I-MAK/ITPC Counter Analysis

September 2011

For any public health intervention, a high-quality impact analysis is critical to shaping and prioritizing policies, and ensuring that the intervention will achieve its intended benefit. An impact analysis with ill-informed or inflated assumptions may over-promise results that are unrealistic. This runs the risk of masking further improvements that may be needed to achieve the desired impact, and can even divert focus and resources away from other approaches.

When evaluating the benefits of the Medicine Patent Pool (MPP), it is therefore important to ensure that the methodology and assumptions underlying its impact analysis are sound. This means ensuring that its analyses are based on realistic (and not overly optimistic) scenarios; use appropriate historical data to inform key assumptions; and compare results to the counterfactual (i.e. status quo) scenario to determine direct incremental benefits.

Using these principles, we have prepared the following analysis as a response to claims made by the MPP about its economic benefits, as elaborated in "Annex 10: Economic Benefits of the Pool" presented to the UNITAID Executive Board in Dec-2009. The categories of savings in Section A of this analysis are consistent with those in the original MPP document to allow for a side-by-side comparison. For each category, we have provided an explanation of our methodology and how it differs from that of the MPP. While all calculations in Section A are based on a hypothetical MPP deal, Section B of this document discusses the financial impact of the actual deal that MPP has recently negotiated with Gilead.

A. Potential Financial Impact of MPP

(1) Reduced transaction costs for FDCs

The MPP estimated one-time savings of $195,000 that could result from their involvement in negotiating voluntary licenses (VLs) for the components of an FDC between 3 originators and 5 generic companies. These savings are based on the assumption that in the absence of MPP, these organizations would need to negotiate 15 separate bilateral agreements, whereas with MPP only need 8 agreements are needed.

I-MAK/ITPC does not dispute MPP's logic and methodology. We agree that this level of savings is possible in the hypothetical scenario that MPP has described. However, this should be considered a high-end estimate as this scenario has higher savings potential than other possible scenarios (e.g. if 1 or more of the components of the FDC are unpatented and don't require licenses).

	MPP analysis	*I-MAK/ITPC analysis*
TOTAL SAVINGS (one-time)	$0.2M	$0.2M

(2) FDC discount

The MPP estimated total 5-year savings of $27.7M (or $5.5M/year on average) that could result from enabling the development of lower-cost FDCs through negotiating generic VLs. This is based on historical price data for the d4T/3TC/NVP FDC vs. single formulations. MPP also calculated this using AZT/3TC/NVP as the comparison product, which yields a lower level of savings ($10.9M over 5 years).

I-MAK/ITPC does not agree with the basic premise that MPP will enable FDC development. In the absence of MPP, such products could still be developed through direct VLs or other existing mechanisms for overcoming IP barriers [1]. Such mechanisms have successfully enabled generic competition across all WHO-recommended ARVs to date. While MPP can facilitate the process of voluntary licensing, companies willing to issue VLs would be able to do so without MPP.

However, given that MPP can *streamline* the VL process, we believe they could reasonably *accelerate* the development of a generic FDC by approximately 6 months. Therefore, using MPP's savings calculations averaged between the D4T and AZT scenarios, we calculate potential one-time savings of $1.9M. This is equal to the average half-year savings over the 5-year timeframe of MPP's analysis.

	MPP analysis	***I-MAK/ITPC analysis***
TOTAL SAVINGS	$5.5M (annual)	$1.9M (one-time)

(3) "Newer" Medicines

The MPP estimated average annual savings of $1.23B/year or $34.6M/year for new medicines (depending on whether or not the originator offers tiered pricing). These savings are based on the premise that MPP will enable generic competition for such medicines, and assumes that prices would behave analogous to TDF 300mg prices over time.

I-MAK/ITPC does not agree with MPP's methodology. In the absence of MPP, generic competition for new ARVs would still be possible through existing mechanisms as discussed above. Further, it is misleading to calculate savings based on the price of TDF, as TDF prices have dropped significantly over time due to a combination of generic competition and process chemistry & sourcing improvements.

We have therefore calculated potential savings based on the assumption that MPP could *accelerate* generic market entry by 6-months using the same logic as above. Patient volume assumptions are consistent with MPP's analysis, and price assumptions are based on the difference in price between originator and generic versions of AZT in the first 5 years after generic market entry[2].

	MPP analysis	***I-MAK/ITPC analysis***
TOTAL SAVINGS	$34.6M-$1.2B (annual)	$16.9M (one-time)

[1] Compulsory licenses or use of other flexibilities in patent laws.
[2] Source: "Untangling the Web of Antiretroviral Price Reductions," MSF.

(4) Pediatric Solids vs. Liquids

Similar to categories 2 and 3 above, the MPP has estimated total savings of $41.4M over 5 years (or $8.3M/year) assuming they enable the development of solid pediatric formulations, and specifically FDCs, versus more expensive liquid formulations developed by originators. Again, we believe such formulations would be developed in the absence of MPP, and that MPP could only potentially accelerate their development by ~6 months. We therefore estimate a potential one-time savings of $4.1M based on the average half-year savings over the 5-year timeframe of MPP's analysis.

	MPP analysis	*I-MAK/ITPC analysis*
TOTAL SAVINGS	$8.3M (annual)	$4.1M (one-time)

(5) Expanded vs. Limited Voluntary Licensing

The MPP has assumed total savings of $18M over 5 years (or $3.6M/year) based upon the assumption that they will enable widespread voluntary licensing and therefore robust generic competition, leading to lower prices than would be seen with limited VLs.

I-MAK/ITPC disagrees with the notion that MPP "enables" widespread licensing. An originator company is either willing to issue widespread VLs or not, regardless of MPP. There is also no reason to believe that a company would only issue limited licenses on its own but license broadly under MPP.

Therefore, I-MAK/ITPC rejects the validity of estimated savings in this area.

	MPP analysis	*I-MAK/ITPC analysis*
TOTAL SAVINGS	$3.6M (annual)	$0M

Summary of Total Economic Benefits ($M)

Source	MPP analysis	I-MAK/ITPC analysis
1. Reduced transaction costs	0.2 *(one-time)*	0.2 *(one-time)*
2. FDC discount	5.5 *(annual)*	1.9 *(one-time)*
3. New medicine	34.6-1,230 *(annual)*	16.9 *(one-time)*
4. Pediatric formulation (solid FDC)	8.3 *(annual)*	4.1 *(one-time)*
5. Widespread voluntary licensing	3.6 *(annual)*	0
Total Savings	**$52M / year** (low end estimate)	**$23M (one-time)** (high end estimate)

B. Estimated Financial Impact of Recent MPP-Gilead Deal

MPP has recently completed its first major deal with an originator, Gilead, which covers TDF and 2 new drugs in development (Cobicistat and Elvitegravir). This section analyzes the financial impact of this deal on the market for TDF. Impact for the 2 new products cannot be analyzed, as it has not been established that these 2 products will be superior to alternatives in terms of clinical efficacy, cost, and/or side effects. Until such facts are established, it is not possible to determine whether these products will be relevant for public health programs in developing countries.

Against the savings categories mentioned in Section A, we do not expect the MPP-Gilead license for TDF to generate any savings for the following reasons:

- **Reduced transaction costs:** Gilead had already negotiated 13 separate voluntary licenses directly with generic companies prior to signing a deal with MPP
- **FDC discount:** TDF-based FDCs are already being produced by generics
- **New medicine:** TDF is not a new medicine
- **Pediatric formulation:** TDF is not currently indicated for pediatric use
- **Widespread voluntary licensing:** Widespread VLs were already in place before MPP deal

Though no economic benefit will result from the MPP-Gilead license in these areas, the deal can be expected to produce savings from lower royalty rates.[3] Whereas previous generic VLs for TDF mandated 5% royalty payments to Gilead, the new MPP license has reduced the royalty rate to 3% for countries where there are no patents on TDF. (If patents are granted, the royalties for affected countries would return to 5%.)

Assuming that TDF remains unpatented in India and most developing countries, we estimate that this deal can generate savings of $20.1M over the next 5 years, or **$4.0M/year** on average. This calculation is based on projected TDF volumes and prices over the next 5 years and assumes that 85% of total TDF volumes would be supplied under generic voluntary licenses (with the originator capturing 5% and unlicensed generics, e.g. Cipla, capturing 10%). This should be considered a high-end estimate of savings, as a lower level of savings would be realized in the event that Gilead and unlicensed generics capture greater than 15% combined market share, or that TDF is patented in India and therefore royalty rates return to 5%.

[3] Expected savings are based on a sub-licensee signing the MPP license. As of 2 October 2011, no generic companies had signed on.

Measuring the Impact of Medicines Patent Pool Licenses: *A Civil Society Assessment*

September 2011

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Overall benefit of MPP-Gilead license vs. status quo

	Original TDF voluntary licenses	MPP-Gilead TDF license*
Competitive Landscape	• **Robust generic competition**: 13 generic licensees as of Dec-2010	• **No new generic licensees** to date • Any additional licensees **unlikely to impact price** given already robust competition
Geographic Scope	• 95 countries in licensed territory *(34 LICs, 39 LMICs, 17 UMICs, 5 HICs)*	• **Minimal expansion:** 16 new but very low-volume countries *(7 LMICs, 3 UMICs, 2 HICs, 4 unclassified territories)***
Patient access	• VLs covering **86% of people on ART** in low- and middle-income countries	• Newly licensed territories represent **< 1% increase in coverage** relative to original VLs *(see next slide)*

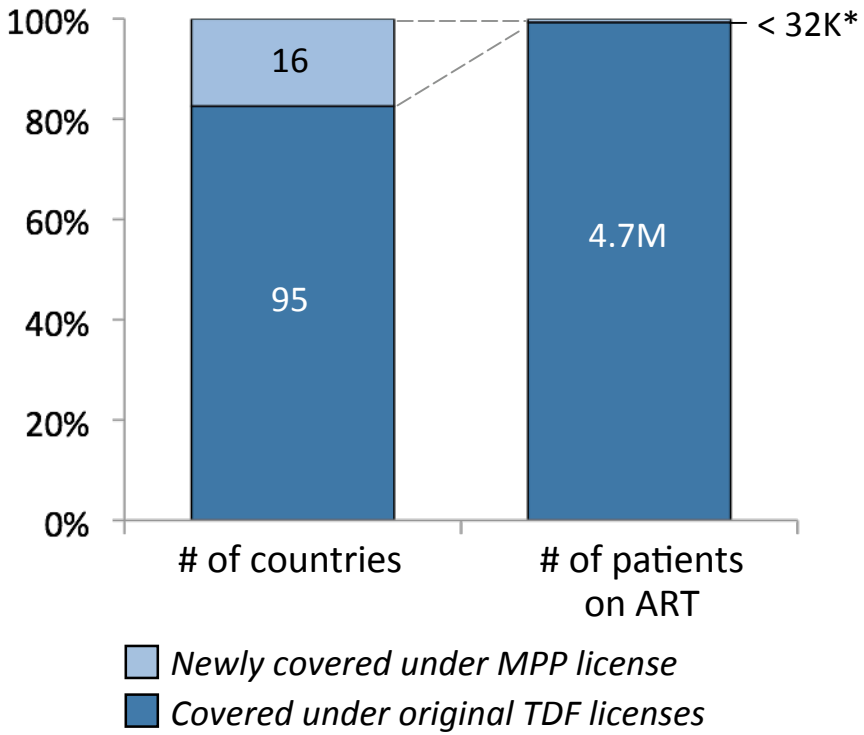
*New Gilead-MPP license also covers 2 new products in development: Cobicistat and Elvitegravir. It has not been established whether these 2 products will be superior to alternatives in terms of clinical efficacy, cost, and/or side effects. Until such facts are established, it is not possible to determine whether the products will be relevant for public health programs in developing countries.

**Gilead has indicated the addition of 17 new countries including the recently formed South Sudan. We did not count this territory as new as it was covered under the original VLs as part of Sudan. Of the 16 new countries, 8 are not tracked by WHO (in terms of patients on or in need of ART).

Sources: ; Gilead Sciences, "Evolution of the Gilead Access Program, 2003-2010," Jul 2011; Medicines Patent Pool/Gilead Licenses Q&A, Aug 2011; WHO Progress Report, "Toward Universal Access", 2010; World Bank income classifications

Will deal result in improvements to patient access?

Newly covered countries represent < 1% increase in patient coverage



Impact on pediatric market has been particularly overstated

MPP claims: MPP will facilitate development of new pediatric formulations

Actual impact: None of the 4 drugs included in MPP deal are currently indicated for pediatric use

Relatively small size of pediatric market will continue to be a barrier to R&D on pediatric formulations

*Patient data unavailable for 8 out of 16 countries newly covered under the MPP deal. Available patient data for other 8 countries was doubled to account for this, which likely represents an overestimation of patients in these territories.
Source: WHO Progress Report, "Toward Universal Access", 2010. Expert interviews. Medicines Patent Pool, "Innovation in ARVs to Meet Developing Country Needs," Chatham House, Jul 2011.

In 2009, MPP claimed large potential economic benefits, were these overstated?

	Theoretical economic benefits claimed by MPP (2009)*		***I-MAK/ITPC counter-analysis****	
	Savings	*Explanation*	*Savings*	*Explanation*
1. "New" medicines	**34.6M+** (*annual*)	• Generic competition enabled by MPP will lower cost of new ARVs in perpetuity	**16.9M** (*one-time*)	• ***Generic market entry and new formulation development would happen even in MPP's absence*** through direct VLs or other mechanisms[2] • However, it is possible that MPP could accelerate generic time-to-market (e.g. by 6 months) through streamlining VL process
2. Pediatric formulations	**8.3M** (*annual*)	• Development of cheaper pediatric solids and FDCs by generics will be enabled by MPP	**4.1M** (*one-time*)	
3. FDC discount	**5.5M** (*annual*)		**1.9M** (*one-time*)	
4. Wide-spread licensing	**3.6M** (*annual*)	• MPP would enable widespread licensing, leading to lower prices	**0**	• ***MPP facilitates but does not cause widespread licensing***. Companies can and have licensed broadly outside of MPP.
5. Reduced trans. costs for FDCs	**0.2M+** (*one-time*)	• Less agreements to negotiate for FDCs when done through MPP[1]	**0.2M** (*one-time*)	• MPP assumptions are sound
TOTAL	**$52M+ annual savings** *(low-end estimate)*		**$23M one-time savings** *(high-end estimate[3])*	

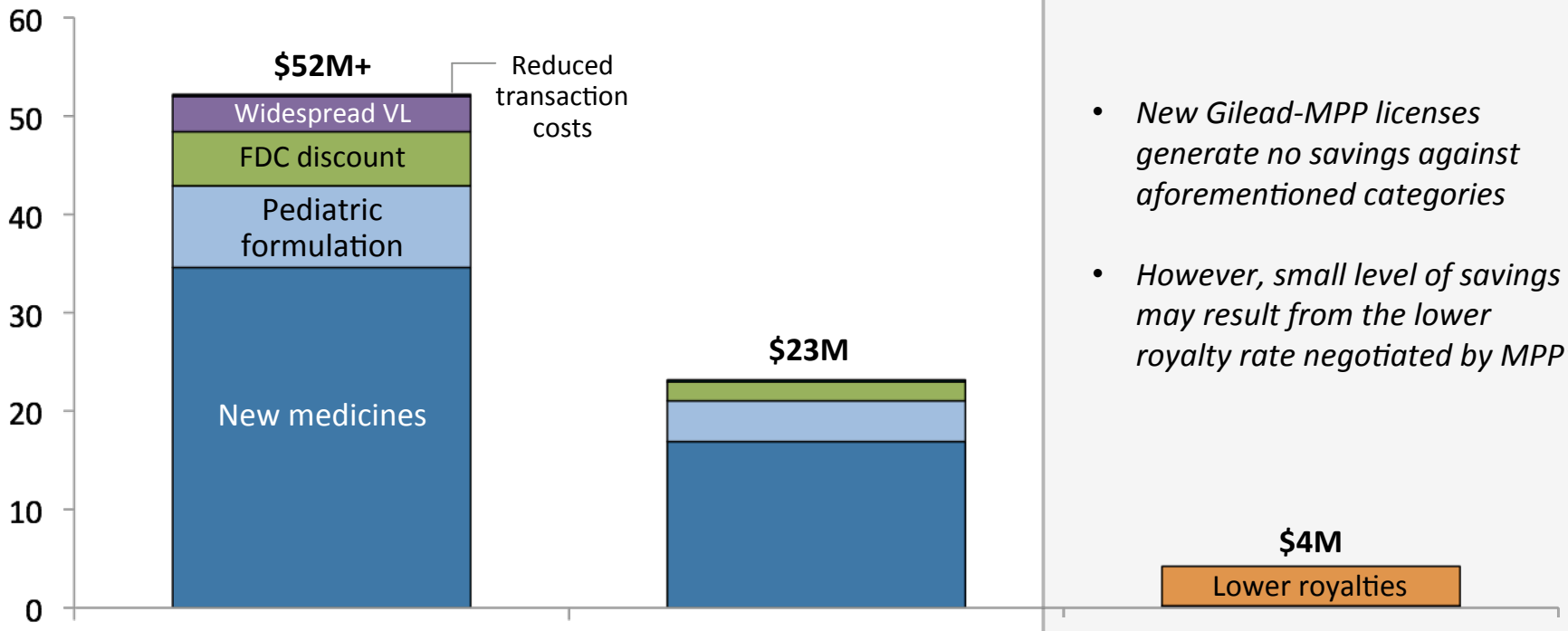
***All figures represent *potential* savings on a hypothetical deal. *Actual* MPP licenses may generate less or no savings, depending on product and license details.**

Note: Savings estimates based on hypothetical MPP deal examples. Detail on methodology can be found in "Financial Impact of MPP – I-MAK/ITPC counter-analysis" document.
(1) For example, if 3 originators licensed to 5 generic companies, 15 bilateral agreements would be needed. With MPP, only 8 agreements are needed. 2) Assumes that new ARVs offering a significant public health benefit would either be licensed voluntarily by originators OR provided through use of flexibilities in IP laws (e.g. compulsory licenses).
(3) I-MAK/ITPC savings calculations are based on aggressive assumptions to determine a realistic upper-limit for potential savings.
Source: MPP document, "Economic Benefits of the Pool: Assumptions and Calculations," presented at UNITAID EB11. I-MAK/ITPC analysis.

… And actual savings for recent Gilead deal?

MPP claims of <u>hypothetical</u> savings were significantly overstated (*see previous slide*)…

…and <u>actual</u> savings on recent Gilead-MPP deal are even lower



Theoretical economic benefit claimed by MPP
(average annual;
low-end estimate)

I-MAK/ITPC counter-analysis: potential MPP savings
(one-time savings only;
high-end estimate)

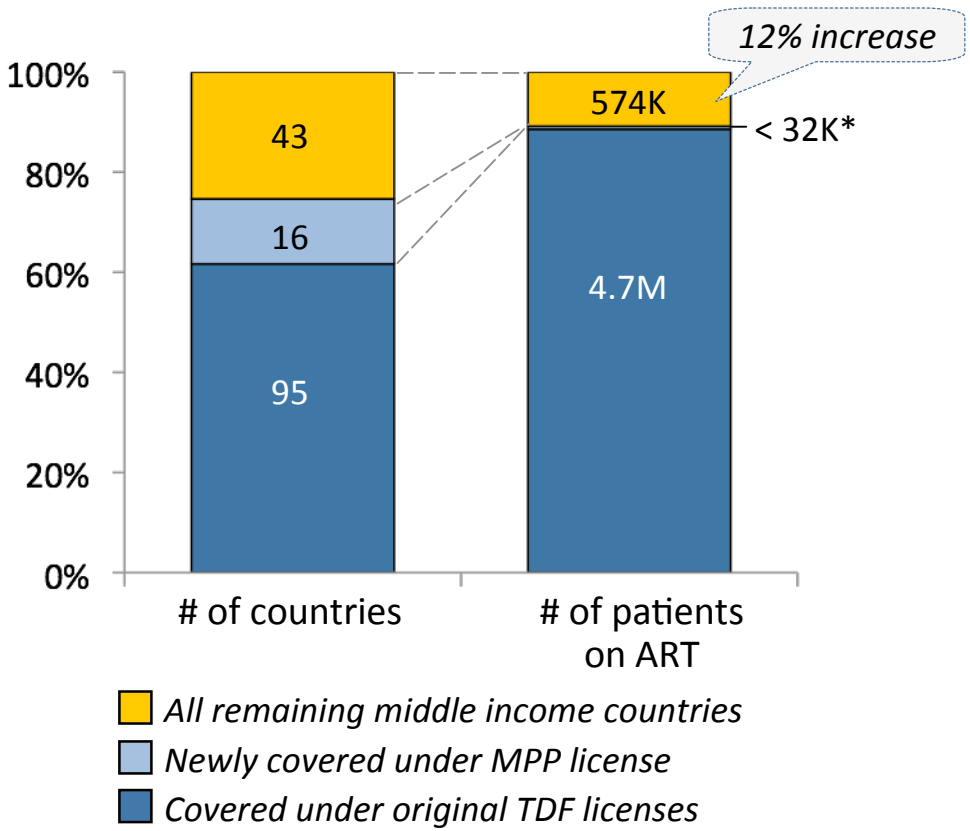
Actual financial savings on Gilead-MPP license for TDF
(average annual;
high-end estimate)

- *New Gilead-MPP licenses generate no savings against aforementioned categories*
- *However, small level of savings may result from the lower royalty rate negotiated by MPP**

Note: *New Gilead-MPP license lowers royalties on TDF from 5% to 3% unless a patent is in place. Average annual savings of $4M are possible assuming TDF continues to stay unpatented in India and other developing countries.
Source: I-MAK/ITPC analysis.

However, significant improvements to access could have been achieved with stronger emphasis on MI countries

Broad MI country coverage would result in significant improvement in patient access*



- MI countries excluded from license currently pay ~**40% more** for TDF given limited generic accessibility and tiered pricing
- Broad access to generic TDF alone could **save MI countries an estimated $3-5M** per year, which could be used to treat an additional **15-30K** new patients**

To significantly improve patient access, MI countries must be included

*List of excluded MI countries is based on data from the WHO Progress Report, "Towards Universal Access, 2010" and World Bank income classifications as of July 2011, and may not be comprehensive . Other methodologies for classifying countries would expand this list and should be used to determine how to ensure access.
**Assumes average per-patient cost of treatment is $180-190 (weighted average cost of first and second-line regimens in LI and MI countries)
Source: WHO Progress Report, "Toward Universal Access", 2010; World Bank income classifications; pricing data from GF PQR; I-MAK/ITPC analysis.

Benefits must outweigh costs

Benefits	*must outweigh*	Costs
• MPP should only pursue deals that lead to **significant gains** in patient access • Negotiating improvements to **MI country access** should be a top priority for MPP		• MPP can **detract from other IP strategies*** that may lead to superior outcomes • Overly **restrictive license terms** will curb competition. • **Licenses for unpatented products** (e.g. TDF) **may create higher costs**, as royalties are paid even in the absence of patents • MPP should focus on eliminating these outcomes when pursuing future deals

The Civil Society community has serious concerns about the current benefits and potential impact being claimed.

Note: *Includes compulsory licensing and creating/utilizing other flexibilities in patent laws which enable access to generic medicines

Annex: List of countries newly added to MPP license vs. list of MI countries excluded

New MPP territories = <32,000 patients*

1 Armenia
2 Ecuador
3 El Salvador
4 Fiji
5 Georgia
6 Kazakhstan
7 Nauru*
8 Palau
9 Sri Lanka
10 Tonga*
11 Turkmenistan*
12 Aruba*
13 Anguilla*
14 British Virgin Islands*
15 Montserrat*
16 Turks & Caicos*

*Patient data unavailable for 8 countries. ITPC/I-MAK high-end estimate.

MI Countries Excluded from MPP = 574,000 patients

1 Albania
2 Algeria
3 American Samoa
4 Argentina
5 Azerbaijan
6 Belarus
7 Bosnia and Herzegovina
8 Brazil
9 Bulgaria
10 Chile
11 China
12 Colombia
13 Costa Rica
14 Egypt
15 Iran (Islamic Republic of)
16 Iraq
17 Jordan
18 Kosovo
19 Latvia
20 Lebanon
21 Libyan Arab Jamahiriya
22 Lithuania
23 Malaysia
24 Marshall Islands
25 Mayotte
26 Mexico
27 Micronesia
28 Montenegro
29 Morocco
30 Panama
31 Paraguay
32 Peru
33 Philippines
34 Romania
35 Russian Federation
36 Serbia
37 Macedonia, FYR
38 Tunisia
39 Turkey
40 Ukraine
41 Uruguay
42 Venezuela (Bolivarian Republic of)
43 West Bank & Gaza

Note: List of excluded MI countries is based on data from the WHO Progress Report, "Towards Universal Access, 2010" and World Bank income classifications as of July 2011, and may not be comprehensive . Other methodologies for classifying countries would expand this list and should be used to determine how to ensure access.