

ADX-HIV content schema

Leveraging a standards-based aggregate data exchange schema to operationalize HIV indicator reporting





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HE Background Enterprise

The internationally-balloted Aggregate Data Exchange (ADX) profile was jointly developed by US CDC and the University of Oslo/HISP; the profile development was funded by the US PEPFAR programme

□ The ADX profile describes:

- a formal, "machine-computable" grammar for defining a message schema to support a jurisdiction's aggregate data exchange requirements
- a conformance-testable description of actors and, where applicable, their interoperable message exchange patterns
- a normative, RESTful, aggregate-data message exchange protocol
- The ADX profile is natively supported by the open source health management information system: DHIS2
- The DHIS2 platform is used by Ministries of Health in over 60 low and middle income countries (LMIC)

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As part of on-going field research, ADX-HIV messages have been exchanged from an OpenMRS EMR to a DHIS2 HMIS to support PEPFAR reporting.





What is the ADX-HIV content specification?

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- The ADX-HIV profile (also co-sponsored by CDC and U.Oslo/HISP) uses the ADX grammar to express a content specification for HIV aggregate data reporting
- A content schema was developed for the core indicators needed to monitor the UNAIDS 90-90-90 initiative
- The profile can be used to satisfy 2 key use cases:
 - Transmitting HIV indicators from a local EMR to a national HMIS
 - Transmitting HIV indicators from a national HMIS to a global M&E repository
- ADX-HIV maps the "common elements" across HIV indicator specifications from PEPFAR, UNAIDS, the Global Fund, WHO, and multiple African Ministries of Health
- As an implementation-specific appendix to the base schema, the PEPFAR MER indicator specs were fully expressed



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HE Healthcare Enterprise HIV 90-90-90 initiative

	90	90	90		
	Knows HIV Status	On ART	Virally Suppressed		
Indicator	% of PLHIV who have been diagnosed	% of PLHIV who are receiving ART	% of PLHIV receiving ART who have suppressed viral load		
	Number of people living with HIV who have been diagnosed	Number of people who are currently receiving ART	Number of people on ART who have suppressed viral load		
Data Elements	Number of people living with HIV	Number of people newly initiating HIV treatment	Number of people retained on HIV treatment		
	Number of pregnant women tested for HIV and were positive	Number of pregnant women on HIV treatment			

Legend:

Numerator

Denominator

Numerator/ Denominator







Transmitting indicators from a local EMR to a national HMIS



Transmitting indicators from a national HMIS to a global M&E repository

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HE ADX-HIV content schema scope Enterprise



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What important lessons did we learn developing this profile?

We needed a formal way to describe age ranges

- ADX-HIV employs the ISO-8601 standard to express *lifetime* periods
- The age range period is defined as being from "at least the first age to less than the second age"
- e.g. 1-4 years old expressed as P1Y--P5Y

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We identified age range gaps and mismatches between differing HIV indicator schemas

PEPFAR MER 2.0		WHO/UNAIDS		The Global Fund			Kenya	Rwanda	
Age Group	ISO 8601 Age group code	Age Group	ISO 8601 Age group code	Age Group	ISO 8601 Age group code	Age Group	ISO 8601 Age group code	Age Group	ISO 8601 Age group code
<1 Yr	POYP1Y	<1 Yr	POYP1Y			<1 Yr	POYP1Y	<1 Yr	POYP1Y
1.0 Ver	DIV DIOV	1-4 Yrs	P1YP5Y	0.14.	DOV DIEV	1.0 Vez	D1V D10V	1-4 Yrs	P1YP5Y
1-9 115 1111101	5-9 Yrs	P5YP10Y	0-14 115	P01P151	1-9 115	P11P101	5-9 Yrs	P5YP10Y	
10-14 Yrs	P10YP15Y	10-14 Yrs	P10YP15Y]		10-14 Yrs	P10YP15Y	10-14 Yrs	P10YP15Y
15-19 Yrs	P15YP20Y	15-19 Yrs	P15YP20Y	15-19 Yrs	P15YP20Y	15-19 Yrs	P15YP20Y	15-19 Yrs	P15YP20Y
20-24 Yrs	P20YP25Y			20-24 Yrs	P20YP25Y	20-24 Yrs	P20YP25Y	20-24 Yrs	P20YP25Y
25-29 Yrs	P25YP30Y							25-49 Yrs	P25YP50Y
30-34 Yrs	P30YP35Y								
35-39 Yrs	P35YP40Y	20+ Yrs	P20YP9999Y			25+ Yrs	P25YP9999Y		
40-49 Yrs	P40YP50Y]		Vertex (1995) Station Index					
50+ Yrs	P50YP9999Y							50+ Yrs	P50YP9999Y

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PEPFAR MER 2.0		WHO/UNAIDS		The Global Fund			Kenya	Rwanda	
Age Group	ISO 8601 Age group code	Age Group	ISO 8601 Age group code	Age Group	ISO 8601 Age group code	Age Group	ISO 8601 Age group code	Age Group	ISO 8601 Age group code
<1 Yr	POYP1Y	<1 Yr	POYP1Y			<1 Yr	POYP1Y	<1 Yr	POYP1Y
1.0 Vez	DAY DIOY	1-4 Yrs	P1YP5Y	0-14 Yrs	POYP15Y	1.0.Vee	P1YP10Y	1-4 Yrs	P1YP5Y
1-9 115	P11P101	5-9 Yrs	P5YP10Y			7-2.112		5-9 Yrs	P5YP10Y
10-14 Yrs	P10YP15Y	10-14 Yrs	P10YP15Y			10-14 Yrs	P10YP15Y	10-14 Yrs	P10YP15Y
15-19 Yrs	P15YP20Y	15-19 Yrs	P15YP20Y	15-19 Yrs	P15YP20Y	15-19 Yrs	P15YP20Y	15-19 Yrs	P15YP20Y
20-24 Yrs	P20YP25Y			20-24 Yrs	P20YP25Y	20-24 Yrs	P20YP25Y	20-24 Yrs	P20YP25Y
25-29 Yrs	P25YP30Y								
30-34 Yrs	P30YP35Y							05 40 V	
35-39 Yrs	P35YP40Y	20+ Yrs	P20YP9999Y			25+ Yrs	P25YP9999Y	25-49 Yrs	P251P501
40-49 Yrs	P40YP50Y			Verret di Sissi di Anner Anno 1997					
50+ Yrs	P50YP9999Y							50+ Yrs	P50YP9999Y

□ It is not easy to create a **universal** schema

- Mapping from one schema to another can present challenges
 - Lumping is doable; we can aggregate more precise data elements to create coarser ones
 - **Splitting** is a problem; prorating data elements requires some ratio to be employed to try to "create" precision and this can introduce potentially-significant errors

□ It is not easy to create a **universal** schema Mapping from one schema to another can present challenges

> • Lumping is doable; we can aggregate more precise data elements to create coarser ones



- □ It is important and useful to separately define the numerators and denominators for each indicator
- Data disaggregations must be mutually exclusive and exhaustive (must provide, altogether, 100% coverage of the population of interest with no overlaps)
- □ Formally mapping data elements to code sets (e.g. SNOMED) addresses ambiguities



What does an ADX-HIV schema look like?

Indicator	Percentage of people living with HIV who are receiving antiretroviral therapy (ART)								
	India	ator Code with I	Mapping						
WHO/UNAIDS	PEPFAR	Global Fund	Kenya	R	wanda				
ART.3	TX_CURR	TCS-1 HIV03.6 -							
Numerator		Number of adults (ART)	Number of adults and children currently receiving antiretroviral therapy (ART)						
QRPH	WHO/UNAIDS	PEPFAR	Global Fu	Ind	Kenya	Rwanda			
QRPH_ADX_ART3_N	ART.3	TX_CURR	TCS-1		HIV03.6	-			
Denominator		Estimated number Note: This denom	of people livin inator is genera	g with ted at	HIV. an above health	facility level			
		Disaggregatio	n						
Disaggregation Name	Age Group Code	Sex	Code			Notes			
<1, Female	P0YP1Y	F							
<1, Male	P0YP1Y	М							
1-4, Female	P1YP5Y	F							
1-4, Male	P1YP5Y	М							
5-9, Female	P5YP10Y	F							
5-9, Male	P5YP10Y	М							
10-14, Female	P10YP15Y	F							
10-14, Male	P10YP15Y	М							
15-19, Female	P15YP20Y	F							
15-19, Male	P15YP20Y	М							
20-24, Female	P20YP25Y	F							
20-24, Male	P20YP25Y	М							
25-29, Female	P25YP30Y	F							
25-29, Male	P25YP30Y	М							
30-34, Female	P30YP35Y	F							
30-34, Male	P30YP35Y	М							
35-39, Female	P35YP40Y	F							
35-39, Male	P35YP40Y	М							
40-49, Female	P40YP50Y	F							
40-49, Male	P40YP50Y	М							
50+, Female	Р50ҮР9999Ү	F							
50+, Male	P50YP9999Y	М							

Table 8.5.3.4-1: Proportion of people living with HIV who are receiving antiretroviral therapy (ART)

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Indicator	Percentage of people living with HIV who are receiving antiretroviral therapy (ART)							
Indicator Code with Mapping								
WHO/UNAIDS	PEPFAR	Global Fund	lobal Fund Kenya Rwanda					
ART.3	TX_CURR	TCS-1	HIV03.6	-				
Numerator	Number of adults and children currently receiving antiretroviral therapy (ART)							
QRPH	WHO/UNAIDS	PEPFAR	EPFAR Global Fund			Rwanda		
QRPH_ADX_ART3_N	ART.3	TX_CURR	TCS-1		HIV03.6	-		
Denominator		Estimated number Note: This denom	of people livin inator is genera	g with ted at	HIV. an above health	facility level		
		Disaggregatio	n					
Disaggregation Name	Age Group Code	Sex	Code			Notes		
<1, Female	P0YP1Y	F						
<1, Male	P0YP1Y	М						
1-4, Female	P1YP5Y	F						
1-4, Male	P1YP5Y	М						
5-9, Female	P5YP10Y	F						
5-9, Male	P5YP10Y	М						
10-14, Female	P10YP15Y	F						
10-14, Male	P10YP15Y	М						
15-19, Female	P15YP20Y	F						
15-19, Male	P15YP20Y	М						
20-24, Female	P20YP25Y	F						
20-24, Male	P20YP25Y	М						
25-29, Female	P25YP30Y	F						
25-29, Male	P25YP30Y	М						
30-34, Female	P30YP35Y	F						
30-34, Male	P30YP35Y	Μ						
35-39, Female	P35YP40Y	F						
35-39, Male	P35YP40Y	М						
40-49, Female	P40YP50Y	F						
40-49, Male	P40YP50Y	М						
50+, Female	Р50ҮР9999Ү	F						
50+, Male	Р50ҮР9999Ү	Μ						

Table 8.5.3.4-1: Proportion of people living with HIV who are receiving antiretroviral therapy (ART)

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▼<mes:Header> <mes:ID>DSD_ADX_HIV</mes:ID> <mes:Test>false</mes:Test> <mes:Prepared>2018-07-31T22:26:02.00Z</mes:Prepared> <mes:Sender id="DHIS2_OPENHIE_SANDBOX"/> </mes:Header> w<mes:Structures> ▼<str:Codelists> cCodelist xmlns="http://www.sdmx.org/resources/sdmxml/schemas/v2_1/structure" id="CL_ORGUNIT" agencyID="IHE_ORPH" version="1.0">...</Codelist> v<Codelist xmlns="http://www.sdmx.org/resources/sdmxml/schemas/v2_1/structure" id="CL_DATAELEMENT" agencyID="IHE_QRPH" version="1.0"> <Name xmlns="http://www.sdmx.org/resources/sdmxml/schemas/v2_1/common" xml:lang="en">DataElement code list</Name> ▶ <Code id="QRPH_ADX_MTCT2_N">...</Code> ▶ <Code id="QRPH_ADX_ART1_N">...</Code> v<Code id="QRPH_ADX_ART3_N"> w<Annotations xmlns="http://www.sdmx.org/resources/sdmxml/schemas/v2_1/common">> w<Annotation xmlns="http://www.sdmx.org/resources/sdmxml/schemas/v2_1/common" id="Disaggregation"> <AnnotationText xmlns="http://www.sdmx.org/resources/sdmxml/schemas/v2 1/common">AGE GROUP</AnnotationText> </Annotation> w<Annotation xmlns="http://www.sdmx.org/resources/sdmxml/schemas/v2 1/common" id="Disaggregation"> <AnnotationText xmlns="http://www.sdmx.org/resources/sdmxml/schemas/v2 1/common">SEX</AnnotationText> and by SEX </Annotation> </Annotations> v<Name xmlns="http://www.sdmx.org/resources/sdmxml/schemas/v2_1/common" xml:lang="en"> Number of adults and children currently receiving antiretroviral therapy (ART) </Name> </Code> ▶ <Code id="QRPH_ADX_ART5_D">...</Code> ▶ <Code id="QRPH_ADX_ART5_N_PREG_BF">...</Code> > <Code id="QRPH_ADX_VLS3_D">...</Code>

href="../schema/dsd validation.sch" type="application/xml" schematypens="http://purl.oclc.org/dsdl/schematron"

```
<Code id="QRPH_ADX_MTCT1_D">...</Code>
</code id="QRPH_ADX_VLS3_N">...</Code>
```

```
<Code id="QRPH_ADX_MTCT1_N">...</Code>
```

```
><Code id="QRPH_ADX_HTS2_N">...</Code>
```

```
<Code id="QRPH_ADX_MTCT2_D">...</Code>
```

```
><Code id="QRPH_ADX_ART5_N">...</Code>
```

```
▶ <Code id="ORPH ADX ART1 N PREG BF">...</Code>
```

```
</Codelist>
```

▼<?xml-model

?>

> <Codelist xmlns="http://www.sdmx.org/resources/sdmxml/schemas/v2_1/structure" id="CL_HIV_TEST_RESULTS" agencyID="IHE_QRPH" version="1.0">...</Codelist>

```
<Codelist xmlns="http://www.sdmx.org/resources/sdmxml/schemas/v2_1/structure" id="CL_SEX" agencyID="IHE_QRPH" version="1.0">...</Codelist>
```

```
> <Codelist xmlns="http://www.sdmx.org/resources/sdmxml/schemas/v2_1/structure" id="CL_PMTCT_HIV_STATUS" agencyID="IHE_QRPH" version="1.0">...</Codelist>
```

```
> <Codelist xmlns="http://www.sdmx.org/resources/sdmxml/schemas/v2_1/structure" id="CL_PREG_BF" agencyID="IHE_QRPH" version="1.0">...</Codelist>
```

```
<Codelist xmlns="http://www.sdmx.org/resources/sdmxml/schemas/v2_1/structure" id="CL_AGE_GROUP" agencyID="IHE_QRPH" version="1.0">...</Codelist>
```

```
> <Codelist xmlns="http://www.sdmx.org/resources/sdmxml/schemas/v2_1/structure" id="CL_PMTCT_ART_STATUS" agencyID="IHE_QRPH" version="1.0">...</Codelist>
</str:Codelists>
```

```
▶ <str:Concepts>...</str:Concepts>
```

```
> <str:DataStructures>...</str:DataStructures>
```

```
</mes:Structures>
```

```
</mes:Structure>
```

cmes:Structure xmlns:xsi="http://www.sdmx.org/2001/XMLSchema-instance" xmlns:com="http://www.sdmx.org/resources/sdmxml/schemas/v2_1/common" xmlns:str="http://www.sdmx.org/resources/sdmxml/schemas/v2_1/structure" xmlns:mes="http://www.sdmx.org/resources/sdmxml/schemas/v2_1/message" xsi:schemaLocation="http://www.sdmx.org/resources/sdmxml/schemas/v2_1/message" xsi

The DSD defines the QRPH_ADX_ART3_N data element to be disaggregated by AGE_GROUP

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▼<?xml-model

?>

- href="../schema/dsd validation.sch" type="application/xml" schematypens="http://purl.oclc.org/dsdl/schematron"
- w<mes:Structure xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:com="http://www.sdmx.org/resources/sdmxml/schemas/v2_1/common" xmlns:str="http://www.sdmx.org/resources/sdmxml/schemas/v2_1</pre> xsi:schemaLocation="http://www.sdmx.org/resources/sdmxml/schemas/v2_1/message .../schema/sdmx/SDMXMessage.xsd">

▼<mes:Header>

<mes:ID>DSD_ADX_HIV</mes:ID>

<mes:Test>false</mes:Test>

- <mes:Prepared>2018-07-31T23:10:02.00Z</mes:Prepared>
- <mes:Sender id="DHIS2_OPENHIE_SANDBOX"/>

</mes:Header>

- ▼<mes:Structures> w<str:Codelists>
- ><Codelist xmlns="http://www.sdmx.org/resources/sdmxml/schemas/v2_1/structure" id="CL_ORGUNIT" agencyID="IHE_QRPH" version="1.0">...</Codelist>
- ><Codelist xmlns="http://www.sdmx.org/resources/sdmxml/schemas/v2_1/structure" id="CL_DATAELEMENT" agencyID="IHE_QRPH" version="1.0">...</Codelist>
- ><Codelist xmlns="http://www.sdmx.org/resources/sdmxml/schemas/v2_1/structure" id="CL_HIV_TEST_RESULTS" agencyID="IHE_QRPH" version="1.0">...</Codelist>
- v<Codelist xmlns="http://www.sdmx.org/resources/sdmxml/schemas/v2_1/structure" id="CL_SEX" agencyID="IHE_QRPH" version="1.0">
- <Name xmlns="http://www.sdmx.org/resources/sdmxml/schemas/v2_1/common" xml:lang="en">Sex</Name>
- ▼<Code id="F">
- <Name xmlns="http://www.sdmx.org/resources/sdmxml/schemas/v2 1/common" xml:lang="en">Female</Name>
- </Code>
- ▼<Code id="M">
- <Name xmlns="http://www.sdmx.org/resources/sdmxml/schemas/v2_1/common" xml:lang="en">Male</Name> </Code>
- </Codelist>
- ><Codelist xmlns="http://www.sdmx.org/resources/sdmxml/schemas/v2_1/structure" id="CL_PMTCT_HIV_STATUS" agencyID="IHE_QRPH" version="1.0">...</Codelist>
- ><Codelist xmlns="http://www.sdmx.org/resources/sdmxml/schemas/v2_1/structure" id="CL_PREG_BF" agencyID="IHE_QRPH" version="1.0">...</Codelist>
- v<Codelist xmlns="http://www.sdmx.org/resources/sdmxml/schemas/v2 1/structure" id="CL AGE GROUP" agencyID="IHE ORPH" version="1.0">
- <Name xmlns="http://www.sdmx.org/resources/sdmxml/schemas/v2_1/common" xml:lang="en">Age group</Name> ▼<Code id="P0Y--P1Y"

<Name xmlns="http://www.sdmx.org/resources/sdmxml/schemas/v2_1/common" xml:lang="en">< 1 year</Name> </Code>

- w<Code id="P1Y--P10Y">
- <Name xmlns="http://www.sdmx.org/resources/sdmxml/schemas/v2_1/common" xml:lang="en">1-9 Years</Name> </Code>
- v<Code id="P10Y--P15Y";</pre>

<Name xmlns="http://www.sdmx.org/resources/sdmxml/schemas/v2_1/common" xml:lang="en">10-14 Years</Name> </Code>

v<Code id="P15Y--P20Y">

<Name xmlns="http://www.sdmx.org/resources/sdmxml/schemas/v2_1/common" xml:lang="en">15-19 Years</Name> </Code>

▼<Code id="P20Y--P25Y ">

<Name xmlns="http://www.sdmx.org/resources/sdmxml/schemas/v2_1/common" xml:lang="en">20-24 Years</Name> </Code>

w<Code id="P25Y--P30Y">

<Name xmlns="http://www.sdmx.org/resources/sdmxml/schemas/v2 1/common" xml:lang="en">25-29 Years</Name> </Code>

w<Code id="P30Y--P35Y";</pre>

<Name xmlns="http://www.sdmx.org/resources/sdmxml/schemas/v2_1/common" xml:lang="en">30-34 Years</Name> </Code>

<Name xmlns="http://www.sdmx.org/resources/sdmxml/schemas/v2_1/common" xml:lang="en">35-39 Years</Name> </Code>

▼<Code id="P40Y--P50Y":

<Name xmlns="http://www.sdmx.org/resources/sdmxml/schemas/v2 1/common" xml:lang="en">40-49 Years</Name> </Code>

w<Code id="P50Y--P9999Y">

<Name xmlns="http://www.sdmx.org/resources/sdmxml/schemas/v2_1/common" xml:lang="en">50+ Years</Name> </Code>

</Codelist>

><Codelist xmlns="http://www.sdmx.org/resources/sdmxml/schemas/v2_1/structure" id="CL_PMTCT_ART_STATUS" agencyID="IHE_QRPH" version="1.0">...</Codelist> </str:Codelists>

- ▶ <str:Concepts>...</str:Concepts>
- > <str:DataStructures>...</str:DataStructures>
- </mes:Structures>

</mes:Structure>

The DSD also defines the codes that make up the AGE_GROUP and by SEX code lists





<sch:rule context="adx:dataValue[@dataElement='QRPH ADX ART3 N']"> <sch:assert test="not(@PREG BF)">@PREG BF is not permitted on element QRPH ADX ART3 N</sch:assert> <sch:assert test="@AGE GROUP">@AGE GROUP must be present on element QRPH ADX ART3 N/sch:assert> <sch:assert test="@SEX">@SEX must be present on element QRPH ADX ART3 N</sch:assert> <sch:assert test="not(@HIV_TEST_RESULTS)">@HIV_TEST_RESULTS is not permitted on element QRPH ADX ART3 N</sch:assert> <sch:assert test="not(@PMTCT ART STATUS)">@PMTCT ART STATUS is not permitted on element QRPH ADX ART3 N</sch:assert> <sch:assert test="not(@PMTCT HIV STATUS)">@PMTCT HIV STATUS is not permitted on element QRPH ADX ART3 N</sch:assert> </sch:rule>

> The ADX-HIV Schematron (SCH) file includes a rule that enforces that the QRPH_ADX_ART3_N element must include AGE_GROUP and SEX elements and **must not include** any of the other elements defined in the code lists.



<sch:rule context="adx:dataValue[@dataElement='QRPH ADX ART3 N']"> <sch:assert test="not(@PREG BF)">@PREG BF is not permitted on element QRPH ADX ART3 N</sch:assert> <sch:assert test="@AGE GROUP">@AGE GROUP must be present on element QRPH ADX ART3 N/sch:assert> <sch:assert test="@SEX">@SEX must be present on element QRPH ADX ART3 N</sch:assert> <sch:assert test="not(@HIV TEST RESULTS)">@HIV TEST RESULTS is not permitted on element QRPH ADX ART3 N</sch:assert> <sch:assert test="not(@PMTCT ART STATUS)">@PMTCT ART STATUS is not permitted on element QRPH ADX ART3 N</sch:assert> <sch:assert test="not(@PMTCT HIV STATUS)">@PMTCT HIV STATUS is not permitted on element QRPH ADX ART3 N</sch:assert> </sch:rule>

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> Section Indicator Numerator Denominator 8.5.3.1 QRPH_ADX_HTS2_N NA Number of individuals who received HIV Testing Services (HTS) and received their test results 8.5.3.2 QRPH_ADX_MTCT1_N QRPH_ADX_MT Proportion of pregnant women with known HIV CT1_D status at antenatal care QRPH_ADX_ART1_N NA Number of adults and children newly enrolled on 8.5.3.3 antiretroviral therapy (ART) Proportion of people living with HIV who are 8.5.3.4 **ORPH ADX ART3 N ORPH ADX AR** T3 D receiving antiretroviral therapy (ART) 8.5.3.5 QRPH_ADX_MTCT2_N QRPH_ADX_MT Proportion of HIV-positive pregnant women who CT2_D received antiretroviral treatment to reduce risk of mother-to-child-transmission (MTCT) during pregnancy. 8.5.3.6 **ORPH ADX ART5 N ORPH ADX AR** Proportion of adults and children known to be alive T5 D and on treatment 12 months after initiation of antiretroviral therapy QRPH_ADX_VLS3_N 8.5.3.7 QRPH_ADX_VL Proportion of people living with HIV and on ART who are virologically suppressed S3_D

There is a section in the ADX-HIV profile dedicated to defining the numerators and denominators needed to track the 7 key indicators of the global HIV 90-90-90 initiative.



What are the next steps for the ADX-HIV?

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- The development of the ADX-HIV profile was funded by the US President's Emergency Plan for AIDS Relief (PEPFAR)
- It is hoped that ADX-HIV can play a role in improving HIV reporting into countries' domestic HMIS
- On a global basis, there are plans to leverage ADX-HIV to help improve the effectiveness and efficiency of HIV reporting from the national HMIS in PEPFAR-supported countries into PEPFAR's global M&E database: DATIM
- □ As part of a DHIS2-related project, it is hoped the ADX-HIV approach will be leveraged by WHO to develop indicator schema for other globallyreported programmes including malaria, TB, maternal care, etc.



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