

Maternal Concept Lab HST.S14 Project

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- World's best practices within MNCH available in highly accessible, standards-based formats
 - High-quality MNCH content reused across multiple projects, organizations and countries.

- **MDG 4** – Reduce by two-thirds the under-5 mortality rate
 - U5MR (under-5 mortality rate)
 - IMR (infant mortality rate)

- **MDG 5** – Reduce by three-quarters the maternal mortality ratio; Achieve universal access to reproductive health
 - MMR (maternal mortality rate)
 - Births attended by skilled health personnel
 - Contraceptive prevalence
 - Antenatal care coverage

Interventions are known!

Chart of packages of interventions for pregnancy care removed due to copyright restrictions.

MNCH Best Practices...

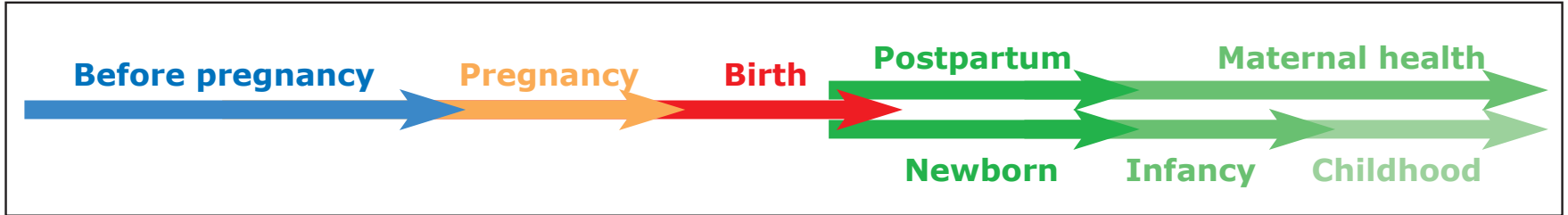


Image by MIT OpenCourseWare.

- PAHO, Perinatal Clinical Record
- UNICEF/USAID, Community Integrated Management for Childhood Illness
- FHI, Family Planning Protocols

PAHO Perinatal Clinical Record

Clinical record removed due to copyright restrictions.

...standards-based formats...

- Medical Terminology
 - Concept dictionary with 200,000 terms mapped to international reference terminologies
 - SNOMED
 - ICD-10
 - HL7
 - LOINC
 - RxNorm
 - Partnership with Columbia University International eHealth Laboratory
 - Data → Information → Indicators

Concept Search Tool

- Multiple Dictionaries
- Concept ID
- Concept Synonyms
- Concept Set
- Descriptions
- Question/Answer Sets
- Class and Datatype
- Mappings
- Concept Lists
- List Highlighting
- Advanced Filters

MCL Search Example

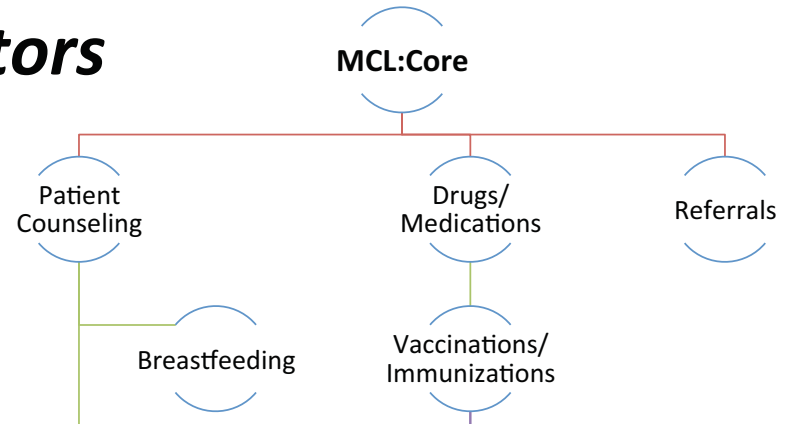
The screenshot shows a web browser window with the URL www.maternalconceptlab.com/search.php?q=antenatal+screening+10-12. The search results are displayed in a table with 5 columns: ID, Concept Hierarchy, Description, Class / Datatype, and Mappings. The search criteria are 'antenatal screening 10-12 50,51,47435007' and the source is 'MCL/MVP Dictionary (openmrs)'. 8 concepts are returned.

ID	Concept Hierarchy	Description	Class / Datatype	Mappings
10 - BRONCHITIS, ACUTE [en]	BRONCHITIS, ACUTE (10)	[en] Lower respiratory infection of the bronchial tubes, acute.	Diagnosis N/A	SNOMED CT: 10509002 SNOMED NP: 13645005 ICD-10-WHO: J00 Member of: TEST
11 - BRONCHITIS, RECURRENT [en]	BRONCHITIS, RECURRENT (11)	[en] Lower respiratory infection of the bronchial tubes, recurrent.	Diagnosis N/A	SNOMED CT: 63480004
12 - X-RAY, CHEST [en]	X-RAY, CHEST (12)	[en] An examination using irradiation for imaging the chest. This concept is a question with the following answers: <ul style="list-style-type: none">NORMAL (1115)PULMONARY EFFUSION (1136)MILIARY CHANGES (1137)EVIDENCE OF CARDIAC ENLARGEMENT (5158)OTHER NON-CODED (5622)INFILTRATE (6049)DIFFUSE NON-MILIARY CHANGES (6050)CAVITARY LESION (6052) This concept is an answer for the following question(s): <ul style="list-style-type: none">TESTS ORDERED (1271)	Test Coded	SNOMED CT: 399208008 PIH CONCEPT: 3386 Member of: MCL Core, TEST
36 - MEASLES VACCINATION [en]	VACCINATIONS (1197) MEASLES VACCINATION (36) DIPHTHERIA TETANUS AND PERTUSSIS VACCINATION (781) HEMOPHILUS INFLUENZA B VACCINATION (5261) HEPATITIS B VACCINATION (782) POLIO VACCINATION, ORAL (783) YELLOW FEVER VACCINATION (5864) PENTAVALENT PNEUMOVAX (1423) POLIO VACCINATION, INACTIVATED (1422)	[en] Vaccination against measles (M). This concept is a question with the following answers: <ul style="list-style-type: none">NO (1066)UNKNOWN (1067)YES (1065) This concept is an answer for the following question(s): <ul style="list-style-type: none">PREVIOUS IMMUNIZATIONS ADMINISTERED (1198)PREVIOUS IMMUNIZATIONS NOT ADMINISTERED (1280)IMMUNIZATIONS (984)	Procedure Coded	SNOMED CT: 47435007 HL-7 CVX: 05 SNOMED NP: 386012008 Member of: MoTeCH Candidates
50 - Personal History of Abortion [en]	Personal History of Abortion (50)	[en] The intentional, premature expulsion of a nonviable fetus from the uterus. This concept is an answer for the following question(s): <ul style="list-style-type: none">REFERRALS ORDERED (1272)	Diagnosis N/A	SNOMED CT: 267014009 SNOMED NP: 70317007 ICD-10-WHO: O05.9 Member of: MCL Core
51 - RICKETS [en]	RICKETS (51)	[en] growth failure in bone due to vitamin D deficiency	Diagnosis N/A	SNOMED CT: 41345002 ICD-10-WHO: E55.0

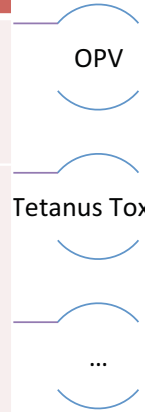
Concept Mapping

Core Concept	Attr/Conce	Person (option)	Element Group	Element Name	Element	Comment	Form Info 1	Form Info 2
Registration								
	attr	MOTHER?	patient_identifier	identifier		RCH1		1. Enter number from RCH1 card: # entry
								2. If not available then send mother to facility to get RCH1
	attr	CHILD	patient	birthdate, birthdate_estimated		?		3. Child birthdate - date entry, must be today's date or earlier
N	concept	CHILD	?	BIRTH WEIGHT (kg)		5916		4. Child birthweight (kg) - numeric entry
	attr	MOTHER	person_name	name		? same as above		5. Mother's name:
	attr	FATHER	person_name	name		? same as above		6. Father's name:
	attr	CLIENT?	person_address	district		?		7. Client's district:
	attr	CLIENT?	person_address	village		?		8. Client village:
	attr	CLIENT?	person_address	subvillage		?		9. Client subvillage:
	attr	CLIENT?	person_address	address1		?		10. Client street:
	attr	CHILD	person_address	neighborhood_cell		?		11. Name of ten-cell leader for child's home:
First home visit								
								Day 1 after discharge from health facility/after delivery
								1. Greet client and introduce self and purpose
						No comparable concept		2. Ask how the baby is doing. Well/Not well
N	concept			IN GOOD HEALTH		1855		Well
	concept							found. May Not Well
						No comparable concept		3. Explain the purpose of the phone
N	concept			INFORMED CONSENT		1710	No concept re: phone us	4. Does client consent to allow provider to use
Y	concept			YES		1065		Yes
Y	concept			NO		1066		No
								4.1 If no, then display "put phone down and pro
								4.2 If yes then continue to 5
N	concept			NORMAL APPEARANCE		132681	Not sure	5. How does the baby look? Well/Not well
N	concept			IN GOOD HEALTH		1855		Well
	concept							found. May Not Well
N	concept			NO SIGNS OR SYMPTOMS OF DISEASE		1660	Not sure	6. Ask the mother if the baby has any of the danger signs
N	concept	child		LETHARGY		116334		• Weakness, limp, baby cannot be woken up (l
N	concept	child		CONVULSIONS		113054		• Convulsion/fits
N	concept	child		DYSPNEA		122496		• Difficulty breathing

Core Dataset and Indicators



Indicator	MDG	Description	Unit
Maternal mortality ratio (per 100 000 live births) - interagency estimates	5	The maternal mortality ratio (MMR) is the annual number of female deaths from any cause related to or aggravated by pregnancy or its management (excluding accidental or incidental causes) during pregnancy and childbirth or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, per 100,000 live births, for a specified year.	Deaths per 100 000 live births
Births attended by skilled health personnel (%)	5	The proportion of births attended by skilled health personnel. Numerator: The number of births attended by skilled health personnel (doctors, nurses or midwives) trained in providing life saving obstetric care, including giving the necessary supervision, care and advice to women during pregnancy, childbirth and the post-partum period; to conduct deliveries on their own; and to care for newborns. Denominator: The total number of live births in the same period.	N/A
Contraceptive prevalence (%)	5	The percentage of women aged 15-49 years, married or in-union, who are currently using, or whose sexual partner is using, at least one method of contraception, regardless of the method used.	N/A
Contraceptive prevalence, among women aged 15-19 (%)	5	The percentage of women aged 15-19 years, married or in-union, who are currently using, or whose sexual partner is using, at least one method of contraception, regardless of the method used.	N/A
Adolescent fertility rate (per 1000 girls aged 15-19 years)	5	The annual number of births to women aged 15-19 years per 1,000 women in that age group. It is also referred to as the age-specific fertility rate for women aged 15-19.	Births per 1000 women in the respective age group



...highly accessible formats...

- Compatible with Common Platforms
 - JavaRosa Compatible Xforms
 - OpenMRS
 - DHIS2 – SDMX-HD
- Packaged for re-use

The Project

Prepare selected MNCH best practices for re-use while contributing to the development of a platform and processes for use of standard interface terminologies.

1. Map selected MNCH best practices to the dictionary
2. Develop core dataset and link to WHO Indicators
3. Select and design delivery platform (paper, mobile, OpenMRS, etc.)
4. Design relevant reports, tools, processes to support delivery of the tool
5. Package for reuse

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HST.S14 Health Information Systems to Improve Quality of Care in Resource-Poor Settings
Spring 2012

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