African Health OER Network Impact Research Plan

Version 5, May 9, 2011

Mission

The mission of the African Health OER Network is to advance health education in Africa by using open educational resources (OER) to share knowledge, address curriculum gaps, and support communities around health education.[1] Open educational resources (OER) are learning materials offered freely and openly for anyone to use and under some licenses to adapt, copy, and redistribute.

Vision

The African Health OER Network (herein referred to as "the Network") seeks to enable participants to develop, adapt, and share health education resources to augment limited human and other resources in the health sector and impact positively on overall health provision in Africa and beyond. It aims to strengthen the intellectual and policy infrastructure within and between African institutions in order to grow a vibrant Health OER network. OER Africa (OERA), an initiative of the South African Institute for Distance Education (Saide), and the University of Michigan (U-M) are the current co-facilitators of the Network.

Our vision is to position the Network as a leader in sharing educational resources for health, dramatically expanding African health educators' global impact and influence and strengthening the Network as a point of reference for learning and teaching materials for educators and learners across the African continent and ultimately worldwide.

Motivation for Impact Research

The goal of the evaluation research is to demonstrate the value and impact of the Network to funders, existing and potential institutional partners, OER creators and users, networks of African health education providers, and the international OER community. The successful 2010 Network grant proposal to the William and Flora Hewlett Foundation included a preliminary logic

[1] http://www.oerafrica.org/healthoer

model and proposed a set of indicators for the first two years of the Network.[2] This document reflects a revised understanding of how to promote OER to support health education in Africa, how to demonstrate the impact of OER on the health education sector, and when to expect various outcomes.

Audiences

The various audiences for health OER may be interested in different types of outcomes and metrics. The audiences that we envision for the results of the impact research are:

- *Leadership at Partner Institutions:* African institutions are interested in using and adapting OER that was produced by African colleagues and how the materials that their faculty have produced are being used and adapted within their institutions and at other institutions. Leadership at institutions are interested in knowing how they can best facilitate creation of and support dissemination of OER so as to formulate relevant policies and enabling environments.
- *Leadership at Other Institutions:* This group represents leadership at academic institutions – across Africa and on other continents – who have complex, and sometimes possibly negative interests in OER. They may be curious about OER and would like to know how to become a partner institution. They may be neutral or skeptical about the value of OER. Others may be anatagonistic toward OER and view it as a threat to traditional proprietary models of education.
- *Existing Networks:* Networks such as MEPI, Health Alliance, and Primafamed are interested in knowing whether and to what extent OER has promoted collaboration between institutions regionally and internationally, and how such collaboration has resulted in production of standardised quality curricula and materials that are responsive to institutional needs and contexts. They would also be interested in knowing the extent and impact of capacity building of faculty; and whether and how successful continuing professional development of health leadership has been, and whether this has succeeded in curbing 'brain drain'. Such networks are excellent vehicles for advocacy and awareness-raising around OER.
- *Individual Creators:* Creators of OER are interested in how their materials are being used, how creating the materials will benefit them professionally, and they wish to receive feedback from their peers on the quality of the content. They also need to know how other institutions are addressing issues of incentivizing creation of OER.
- *Learners:* Learners include students at the partner institutions, practicing health care professionals pursuing continuing education, and self-learners who stumble across the Network website. Most importantly, learners are interested in successfully completing their studies and are looking for high-quality, accurate content that is easy to access and relevant to their context. Learners may also want to know the credibility of OER content. Most learners will also be interested in anything that can help to lower their costs of study without compromising their ability to complete their program successfully.

[2]See pages 18 - 20, https://open.umich.edu/wiki/images/7/71/20091009UM-OERAfricaHewlett2010HealthOER-proposal-public.pdf

- *Donors:* Donors are interested in the evidence chain and the usage/adaptation of materials (single files as well as entire courses) to improve teaching and learning. They are also interested in productive use of their finances and in initiatives which have potential for post-project sustainability and can be replicated elsewhere where they may want to fund similar projects.
- *Academics in General:* These are academics who may be interested in using and adapting existing OER in their courses, but are not necessarily interested in sharing their adaptation as OER. They are interested in high-quality, accurate content that is simple to access, easy to adapt, and relevant to their context. Learners may also be interested in the process of and implications for content creation.
- *International OER Community:* This includes members of various open education consortia, groups, and journals, including the Open CourseWare Consortium and the Open Ed Conference. The OER community is interested in models and processes that are generalizable or adaptable to other institutions and contexts. This includes models of collaboration, institutional approaches to motivating creation and use of OER, quality assurance mechanisms, and scalable methods of OER production and distribution.

Research Questions

We will focus our research on the following questions:

1. Is there clear evidence that the published OER are being used by students?
2. Is there any evidence that partner institutions are proactively starting to use OER produced outside the Network in their programs? Can this use be linked to what we have done?
3. Is there any evidence that the quality of teaching and learning at partner institutions has improved due to the investments in producing and using OER? Can we establish any link to improved learning outcomes at any institutions?
4. What have been the relative financial implications of OER compared to proprietary approaches of publishing and content development, both to delivering education in universities and to producing educational resources?
5. Is there any evidence of any non-partner institutions having found and used the products from the Network?
6. What is the impact of OER on academics' career development?
7. What is the effective social and technical institutional infrastructure to support OER production and use?
8. What is an effective cross-institutional collaboration model for OER production?

Research Methods

We plan to collect both qualitative and quantitative data through a variety of methods, including

- in-person semi-structured interviews with faculty, staff and students at partner and other institutions
- online surveys of faculty, staff, and students at partner institutions
- a public online survey available on the OERA website

- document analysis of completed OER, policies, meeting notes, press releases, websites, student reflections on using OER, etc.
- web analytics from Google, YouTube, the OERA website, and the U-M website

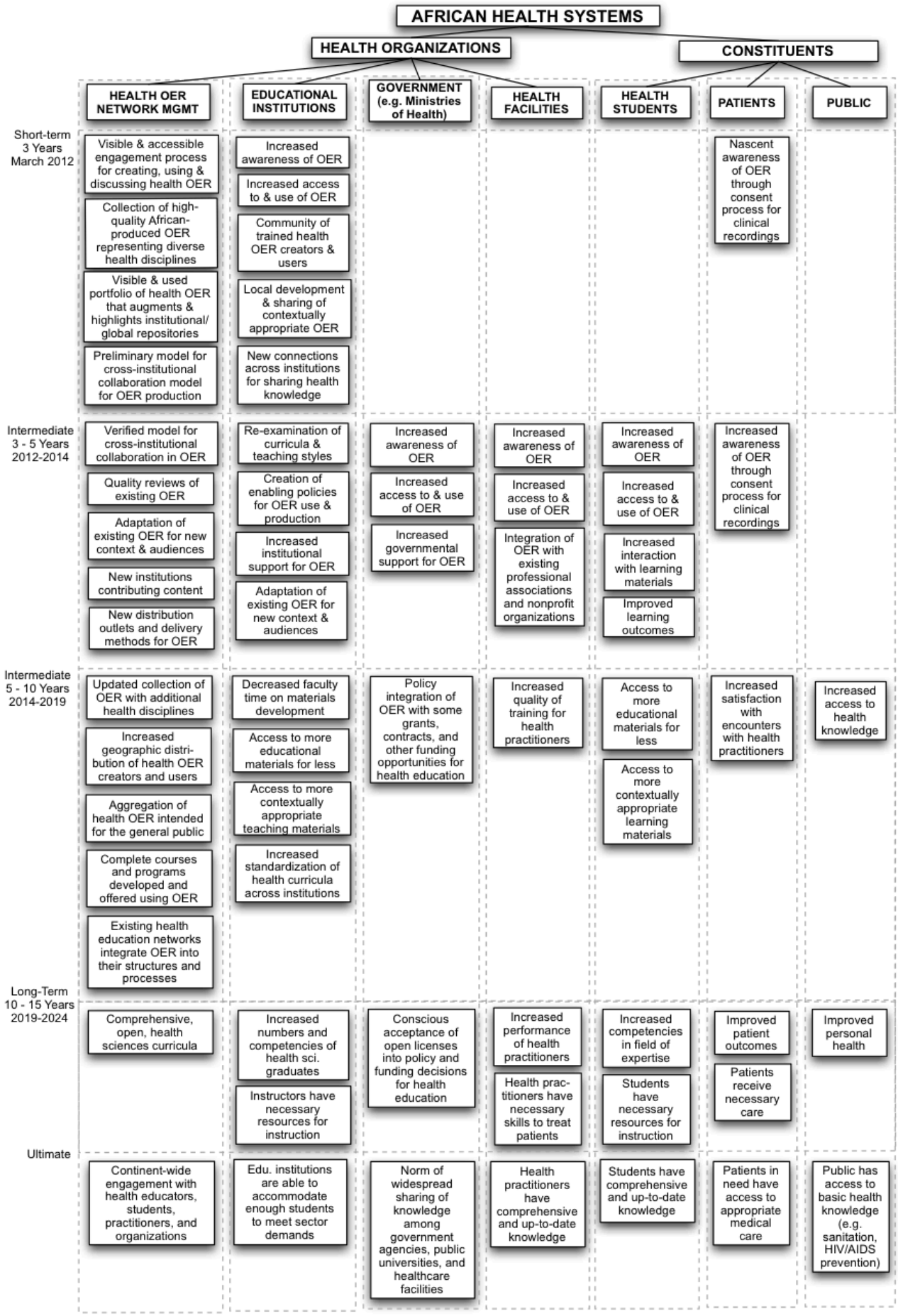
With so many data sources over time, we must be mindful to carefully hold all of these activities and outcomes together in terms of drawing inferences and conclusions from disparate kinds of data.

This study will build upon previous evaluation efforts conducted in 2009-2010, including the in-person semi-structured qualitative interviews conducted with faculty, staff, and students for the 2009 OER collaboration study, institutional case studies, and the annual external evaluations. Impact of OER will form part of the evaluation focus planned for 2011 - 2012, including the in-person semi-structured interviews planned for the 2011 external evaluation and the 2011 OER collaboration study, the 2012 online OER Awareness polls at two South African institutions, and the 2012 in-person OER Awareness polls at two Ghanaian institutions. We will work closely with collaborators at the various partner institutions to conduct this research. In this regard, the project will contribute to research capacity building.

The majority of the 2011 evaluation activities will be funded by the existing Hewlett grant. A portion of the 2011 and 2012 evaluation efforts will be sponsored by an existing U-M grant from the National Science Foundation for the Virtual Organizations as Sociotechnical Systems program. U-M and OERA are currently seeking funding opportunities for additional impact research beyond 2012.

Anticipated Outcomes

The following figure lists anticipated outcomes of the Network, broken down by stakeholder group and time frame. We are focused on health systems in Africa, which consist of organizations that provide health services and the constituents served by these organizations. Organizations are made up of specialists who treat patients, educators, individuals who facilitate the distribution of health knowledge, and government officials and managers who control policies around health provision and education. Constituents include health students, patients, and the general public. Each stakeholder group will be introduced to OER in stages. The rows represent the progression of outcomes for each stakeholder group. During the first 3 years of the Network, our activities have focused mainly on Network management and educational institutions, which is where we expect to see the first effects. Since some of the institutions are creating OER which contain clinical recordings with patient consent, we may see some limited patient awareness of OER during the first 5 years. After 3 - 5 years, we plan to engage with more governments, health facilities, and students. After 5 - 10 years, we expect to begin to see some impact of health OER on patients and in the general public because of the increase of OER developed by the Network, which will complement already existing efforts at open dissemination of content through print media and broadcasting, for example, on HIV/AIDS. After 10 - 15 years, we anticipate strong results with all stakeholder groups. The bottom row represents the ideal, ultimate long-term outcomes, which may be most difficult to measure.


AFRICAN HEALTH SYSTEMS
HEALTH ORGANIZATIONS
CONSTITUENTS
HEALTH OER NETWORK MGMT
EDUCATIONAL INSTITUTIONS
GOVERNMENT (e.g. Ministries of Health)
HEALTH FACILITIES
HEALTH STUDENTS
PATIENTS
PUBLIC
Short-term 3 Years March 2012
Visible & accessible engagement process for creating, using & discussing health OER
Collection of high-quality African-produced OER representing diverse health disciplines
Visible & used portfolio of health OER that augments & highlights institutional/ global repositories
Preliminary model for cross-institutional collaboration model for OER production
Increased awareness of OER
Increased access to & use of OER
Community of trained health OER creators & users
Local development & sharing of contextually appropriate OER
New connections across institutions for sharing health knowledge
Nascent awareness of OER through consent process for clinical recordings
Intermediate 3 - 5 Years 2012-2014
Verified model for cross-institutional collaboration in OER
Quality reviews of existing OER
Adaptation of existing OER for new context & audiences
New institutions contributing content
New distribution outlets and delivery methods for OER
Re-examination of curricula & teaching styles
Creation of enabling policies for OER use & production
Increased institutional support for OER
Adaptation of existing OER for new context & audiences
Increased awareness of OER
Increased access to & use of OER
Increased governmental support for OER
Increased awareness of OER
Increased access to & use of OER
Integration of OER with existing professional associations and nonprofit organizations
Increased awareness of OER
Increased access to & use of OER
Increased interaction with learning materials
Improved learning outcomes
Increased awareness of OER through consent process for clinical recordings
Intermediate 5 - 10 Years 2014-2019
Updated collection of OER with additional health disciplines
Increased geographic distri-bution of health OER creators and users
Aggregation of health OER intended for the general public
Complete courses and programs developed and offered using OER
Existing health education networks integrate OER into their structures and processes
Decreased faculty time on materials development
Access to more educational materials for less
Access to more contextually appropriate teaching materials
Increased standardization of health curricula across institutions
Policy integration of OER with some grants, contracts, and other funding opportunities for health education
Increased quality of training for health practitioners
Access to more educational materials for less
Access to more contextually appropriate learning materials
Increased satisfaction with encounters with health practitioners
Increased access to health knowledge
Long-Term 10 - 15 Years 2019-2024
Comprehensive, open, health sciences curricula
Increased numbers and competencies of health sci. graduates
Instructors have necessary resources for instruction
Conscious acceptance of open licenses into policy and funding decisions for health education
Increased performance of health practitioners
Health prac-titioners have necessary skills to treat patients
Increased competencies in field of expertise
Students have necessary resources for instruction
Improved patient outcomes
Patients receive necessary care
Improved personal health
Ultimate
Continent-wide engagement with health educators, students, practitioners, and organizations
Edu. institutions are able to accommodate enough students to meet sector demands
Norm of widespread sharing of knowledge among government agencies, public universities, and healthcare facilities
Health practitioners have comprehensive and up-to-date knowledge
Students have comprehensive and up-to-date knowledge
Patients in need have access to appropriate medical care
Public has access to basic health knowledge (e.g. sanitation, HIV/AIDS prevention)

The appendix contains a table which defines the indicators associated with outcomes defined in the previous figure, broken down by audience and data source. The table contains a wide spectrum of possible metrics, and we will trim it down and identify targets for each indicator during the research activities.

Conclusion

OER has tremendous potential to positively impact health education and outcomes in Africa and worldwide. This document has reaffirmed the mission and vision of the African Health OER Network. We have explored motivations for our impact research for health OER and identified audiences for our results. We have proposed a framework for what outcomes to expect from the various stakeholders (Health OER Network management, institutions, governments, health facilities, students, patients, and the public), when to expect those outcomes, indicators for each outcome, and methods for collecting that information. We will work closely with collaborators at the various partner institutions to conduct this research and will adapt the research plan as the Network evolves.

Appendix: Outcomes and associated targets, audiences, and data sources

In the table below, the audience column represents:
PI = Leadership at Partner Institutions
C = Individual Creators
L = Learners
D = Donors
OI = Leadership at Other Institutions
AG = Academics in General
OC = International OER Community

Under the Data Source column:
IPI = in-person semi-structured interviews with faculty, staff and students at partner and other institutions
OIS = online surveys of faculty, staff, and students at partner institutions
OWS = a public online survey available on the OERA website
G= Google Analytics or Groups
Y = YouTube
OW= OERA Website
UMW = U-M website
DA = document analysis

Indicator * Indicates metric that is repeated across outcomes	**Target**	**Audience**	**Data Source**
Short Term, 3 Years, March 2012			
Health OER Network Management: Visible and accessible engagement process for creating, using, discussing, or promoting health OER			
(#) individual & organization signatures on Declaration of Support	150 individuals and 10 organizations by Dec. 2011	D, OC	OW
(#) individuals subscribed to quarterly newsletter		D	OW
(#) individual/organizational content contributors	300 individuals by Dec. 2011	D, PI, OI, C, L, AG	OW
(#) people/institutions subscribed to oer-tech, oer-dScribe, and oer-health mailing		D, OC	G

lists			
# individuals/institutions in bi-monthly oer-tech and oer-dScribe calls		D, OC	DA
# individuals/institutions using OERca		D, OC	UMW
# institutions with local installs of OERca	1 by Dec. 2011	D, OC	UMW
# institutions contributing to OERca code development		D, OC	UMW
# institutions requesting external dScribe services and associated amount spent		PI, OI, OC	DA
(#) academics volunteering to review submitted content			IPI, OIS, OW
Health OER Network Management: Collection of high-quality African-produced OER representing a diverse range of health disciplines			
# and range of health disciplines represented		C, L, AG	OW, UMW
# of resources published, by material type, by discipline, and by file type (e.g. PPT, DOC, Flash Video)	50 by Dec. 2010, 100 by Dec. 2011	C, L, AG	OW, UMW
# of learning hours represented by collection of resources		D, C, L, AG	IPI, OW
Health OER Network Management: Visible and used portfolio of OER health education learning materials that augments and highlights institutional and global repositories			
amount of money saved by using OER instead of paying licensing fees for relevant copyright-restricted content		D, PI, OI, OC	IPI
(#) downloads from OER Africa, U-M, and institutional repositories		D, PI, OI, C	IPI, OW, UWM, G, Y
(#) visits, visitors from OER Africa, U-M, and institutional repositories, trends over time		D, PI, OI, C	IPI, OW, UMW, G, Y
(# and %) health science faculty, staff, students aware of African Health OER Network, per institution		D	IPI, OIS
(#) requests for health OER		D, PI, OI, OC	OW

(#) fulfilled requests for health OER		D, PI, OI, OC	OW
(#) sites hosting Network-produced content/metadata		D	DA
(#) website referrals		D	G
user ratings and comments on content		D, C, L, AG	OW, UMW, Y
top 20 search terms on Health OER Network website		O	G
(#) resources in peer-reviewed repositories (e.g. MedEdPORTAL, MERLOT)		I, C, L, AG	DA
Geographical distribution of contributors and users of the OERA and U-M websites		D, OC	G, OW, UMW
Health OER Network Management: Preliminary model for cross-institutional collaboration model for OER production			
(#) conference presentations		D, OC	DA, OW
(#) peer-viewed papers published		D, OC	DA, OW
Institutions: Increased awareness of OER			
(# and %) health science faculty, staff, leadership aware of OER, per institution		D,O	IPI, OIS
Institutions: Increased access to and use of OER			
(# and %) health science faculty, staff, leadership who have used the locally-developed OER from colleagues at their institution		D, PI, OI, C	IPI, OIS
(# and %) health science faculty, staff, leadership who have used the locally-developed OER from other institutions		D, PI, OI, C, AG	IPI, OIS
Institutions: Community of trained health OER creators and users			
(#) invited presentations		D	OW, DA
(#) training workshops held		D	OW, DA
(#) advocacy workshops held		D	OW, DA
(#) individuals trained in OER Production (includes dScribes)	At least one dScribe trained per institution by	D	DA

	December 2011		
(% of) content being used legally (i.e. without copyright infringements, privacy issues)		D, OC	DA
Institutions: Local development & sharing of contextually appropriate OER			
(#) resources produced by institution	15 resources produced annually by institutions	D, PI, OI	OW
(total #) of notional learning hours produced by each institution		D, PI, OI	IPI, OW
Institutions: New connections across institutions for sharing knowledge of health education			
(#) jointly developed OER with authors from different institutions		D, C, OC, AG	DA
(#) jointly submitted publications with authors from different institutions		D, C, OC	DA
Patients: Nascent awareness of OER through consent process for clinical recordings			
(#) patients accepting/declining to be recorded for OER and explaination of choice		PI, OI, C, AG	
Intermediate, 3-5 Years, 2012 - 2014			
Health OER Network Management: Verified model for cross-institutional collaboration in OER			
*(#) jointly developed OER with authors from different institutions		D, C, OC, AG	DA
Health OER Network Management: Quality reviews of existing OER			
(#) content reviews conducted		D, PI, OI, C, L	DA
user ratings and comments on content*		D, C, L, AG	
Health OER Network Management: Adaptation of existing OER for new context & audiences			
(#) OER adapted, how, and by whom		D, PI, OI, C, OC, AG	IPI, OIS, OWS
Health OER Network Management: New institutions contributing content			

# of individual/organizational content contributors*		D, PI, OI, C, L, AG	OW
Health OER Network Management: New distribution outlets and delivery methods for OER			
(#) sites hosting Network-produced content/metadata		D	DA
presentation formats of OER		D, PI, OI, C, OC, L, AG	OW, UMW
(#) resources in peer-reviewed repositories (e.g. MedEdPORTAL, MERLOT)		I, C, L, AG	DA
Geographical distribution of contributors and users of the OERA and U-M websites		D, OC	G, OW, UMW
Institutions: Re-examination of local curricula and teaching styles			
(#) faculty integrating OER into classroom teaching		D, PI, OI, C, OC, AG	IPI, OIS
Ratio of open to proprietary learning materials, per institution		D, OC	DA, IPI
Institutions: Creation of enabling policies for OER use & production			
(#) institutions with strategies to establish OER institutional/faculty policies	2 new institutions, by the end of December 2011		IPI, DA
(#) institutions implementing policies to support OER	4 new institutions by the end December 2011	D, OC	IPI, DA
Institutions: Increased institutional support for OER			
amount ($ and %) of funds contributed by institution		D, PI, OI	IPI
Dedicated appointments made to drive OER development		D, PI, OI	IPI, DA, OIS
Institutions: Adaptation of existing OER for new context & audiences			
(#) OER adapted, how, and by whom*		D, PI, OI, C, AG, OC	IPI, OIS
Government: Increased awareness of OER			
(# & %) of politicians and policymakers		D, OC	IPI, OWS

aware of OER			
Government: Increased access to and use of OER			
(# & %) of politicians and policymakers using OER		D, OC	IPI, OWS
Government: Increased governmental support for OER			
(#, $) grants benefiting one or more of the participating institutions which plan to share deliverables as OER		D, OC	IPI, DA
(#) references to OER in press releases, interviews, or other official documents		D, PI, OI, OC	DA
Health Facilities: Increased access to and use of OER			
(# and %) health practitioners and administrators aware of OER, per facility		D, OC	IPI, OWS
Health Facilities: Integration of OER with existing professional associations and nonprofit organizations			
(#, $) grants or contracts benefiting one or more of the participating institutions which plan to share deliverables as OER		D, PI, OI, OC	IPI, DA
(#) professional associations with health OER committees & processes*		D, PI, OI, C, OC	IPI, DA
Students: Increased awareness of OER			
(# & %) of students aware of OER		D, PI, OI, C	IPI, OIS
Students: Increased access to and use of OER			
(# and %) health science faculty, staff, leadership who have used the locally-developed OER from instructors at their institution		D, PI, OI, C	IPI, OIS
(# and %) health science faculty, staff, leadership who have used the locally-developed OER from other institutions		D, PI, OI, C	IPI, OIS
Students: Increased interaction with learning materials			
Student perceptions of interactivity OER compared to other teaching methods		D, PI, OI, C, L, AG	IPI, OIS

Students: Improved learning outcomes			
Standardized examinations		D, PI, OI, C, L, AG	IPI, OIS
Student reflections on knowledge gained from OER and effectiveness compared to other teaching methods		D, PI, OI, C, L, AG	IPI, OIS
Patients: Increase awareness of OER through consent process for clinical recordings			
(#) patients accepting/declining to be recorded for OER and explaination of choice		PI, OI, C, AG	
Intermediate, 5 - 10 Years, 2014-2019			
Health OER Network Management: Updated collection of OER with additional health disciplines			
# and range of health disciplines represented*		D, C, L, AG	OW, UMW
# of resources published, by material type, by discipline, and by file type (e.g. PPT, DOC, Flash Video)*		D, C, L, AG	OW, UMW
# of learning hours represented by collection of resources*		D, C, L, AG	IPI, OW
Health OER Network Management: Increased geographic distribution of health OER creators and users			
Geographical distribution of contributors and users of the OERA and U-M websites*		D, OC	G, OW, UMW
Health OER Network Management: Aggregation of health OER intended for the general public			
# of resources published for general public, by material type, by discipline, and by file type (e.g. PPT, DOC, Flash Video)		D, C, L, AG	OW, UMW
# of learning hours represented by collection of resources for general public		D, C, L, AG	OW, UMW
Health OER Network Management: Complete courses and programs developed and offered using OER			
(#) courses and programs developed and offered using OER			IPI, OIS, OWS, DA

Health OER Network Management: Existing health education networks integrate OER into their structures and processes			
(#) professional associations with health OER committees or processes*		D, PI, OI, C, OC	IPI, DA
Institutions: Decreased faculty time on materials development			
amount of time to develop OER		D, PI, OI, C, OC	IPI, OIS
amount of time saved by adapting existing OER		D, PI, OI, C, OC, AG	IPI, OIS
Institutions: Access to more educational materials for less			
amount of money saved by using OER instead of paying licensing fees for relevant copyright-restricted content		D, PI, OI, L, C, AG, OC	IPI, OIS
Institutions: Access to more contextually appropriate teaching materials			
Instructor perceptions of appropriateness of existing OER for their context		D, PI, OI, OC	IPI, OIS
Institutions: Increased standardization of health curricula across institutions			
Instructor and administrator perceptions of standardization resulting from OER		D, PI, OI, OC	IPI, OIS
Government: Policy integration of OER with some grants, contracts, and other funding opportunities for health education			
(#) references to OER in press releases, interviews, or other official documents*		D, PI, OI, OC	DA
Health Facilities: Increased quality of training for health practitioners			
Health practitioner reflections of interactivity OER compared to other teaching methods		D, PI, OI, C, L, AG	IPI, OIS
Health practitioner reflections on knowledge gained from OER and effectiveness compared to other teaching methods		D, PI, OI, C, L, AG	IPI, OIS
Students: Access to more educational materials for less			

amount of money saved by using OER instead of paying licensing fees for relevant copyright-restricted content*		D, PI, OI, L, C, AG, OC	IPI, OIS, DA
Students: Access to more contextually appropriate learning materials			
Student perceptions of appropriateness of existing OER for their context		D, PI, OI, C, L, AG	IPI, OIS, DA
Patients: Increased satisfaction with encounters with health practitioners			
Patient perceptions of interactions with health practitioners		D, PI, OI, C, AG	IPI
Public: Increased access to health knowledge			
Awareness of available public health resources		D, PI, OI, C, AG	IPI
Long-Term, 10 - 15 Years, 2019-2024			
Health OER Network Management: Comprehensive, open, health sciences curricula			
# and range of health disciplines represented		D, C, L, AG	OW, UMW
# of resources published, by material type, by discipline, and by file type (e.g. PPT, DOC, Flash Video)		D, C, L, AG	OW, UMW
# of learning hours represented by collection of resources		D, C, L, AG	IPI, OW
Institutions: Increased numbers and competencies of health sci. graduates			
Graduation levels for physicians, dentists, nurses, public health workers, etc		D, PI, OI, C, AG	DA
Institutions: Instructors have necessary resources for instruction			
Instructor perceptions of availability and appropriate of instructional resources and support within institution		D, PI, OI, L, C, AG	IPI
Government: Conscious acceptance of open licenses into policy and funding decisions for health education			
(#) references to OER in press releases, interviews, or other official documents		D, PI, OI, OC	DA

Health Facilities: Increased performance of health practitioners			
Scores on standardized board tests and continuing education assessments		D, PI, OI, C, AG	DA
Health Facilities: Health practitioners have necessary skills to treat patients			
Health practitioner confidence in skills		D, PI, OI, C, AG	
Health care statistics		D, PI, OI, C, AG	DA
Students: Increased competencies in field of expertise			
Scores on standardized board tests		D, PI, OI, C, AG	DA
Students: Students have necessary resources for instruction			
Student perceptions of availability and appropriate instructional resources and support within institution		D, PI, OI, L, C, AG	IPI
Patients: Improved patient outcomes			
Health care statistics		D, PI, OI, C, AG	DA
Patients: Patients receive necessary care			
Health care statistics*		D, PI, OI, C, AG	DA
Public: Improved personal health			
Awareness of available public health resources		D, PI, OI, C, AG	IPI
Health care statistics*		D, PI, OI, C, AG	DA