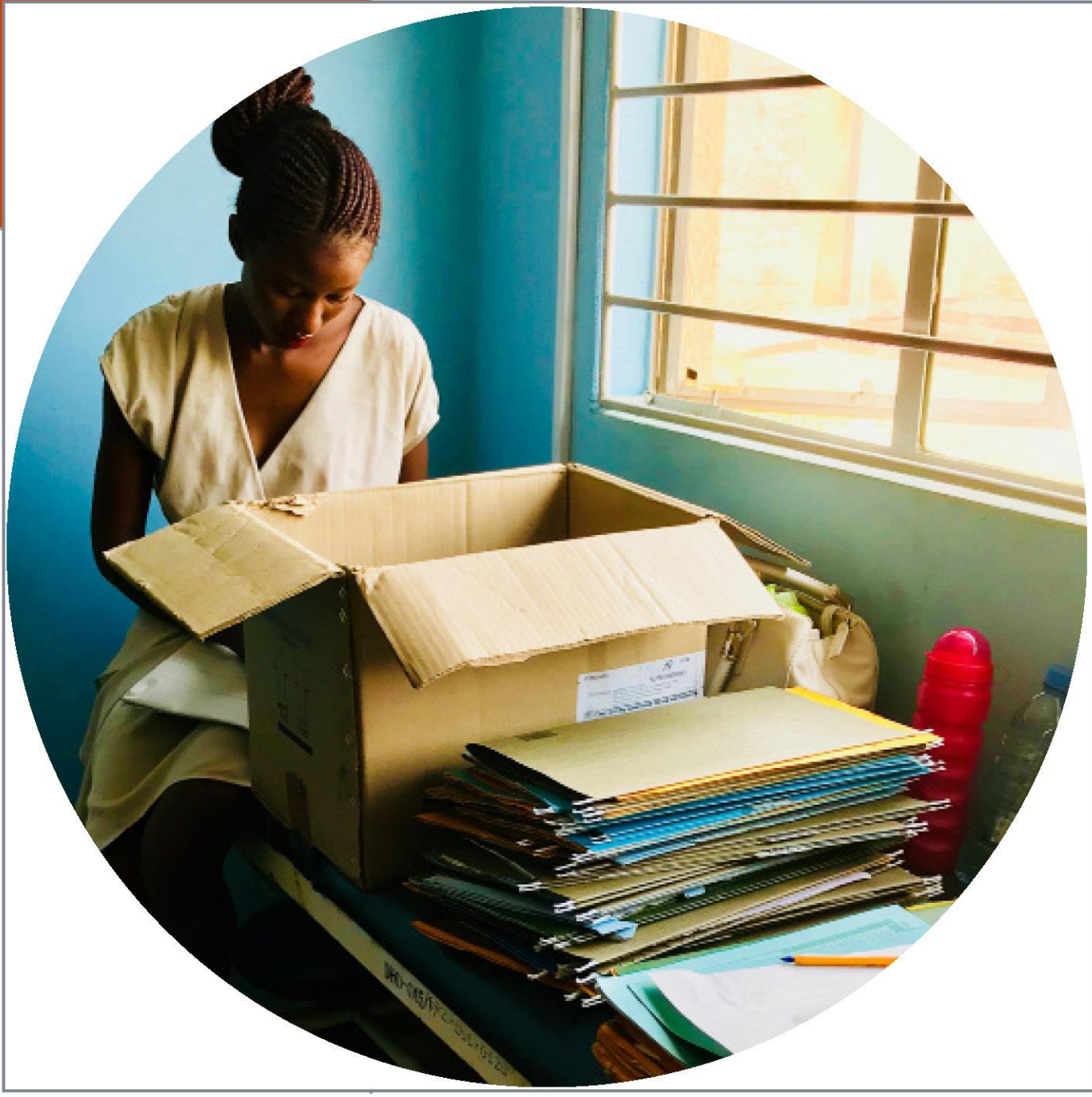
Needs Assessment

on Resources for Use of Routine and Other Secondary Data for Health Evaluation and Research



December 2020

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DATA FOR impact

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on Resources for Use of Routine and Other Secondary Data for Health Evaluation and Research

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Contents

Figures

Tables

Abbreviations

ANOVA	Analysis of variance
D4I	Data for Impact
DHS	Demographic and Health Survey
FP	family planning
HIS	health information system
HMIS	health management information system
IP	implementing partner
LMIC	lower- and middle-income country
M&E	monitoring and evaluation
MCH	maternal and child health
MOOC	Massive Open Online Course
NGO	nongovernmental organization
RH	reproductive health
RHIS	routine health information system
USAID	United States Agency for International Development

Introduction

There is increasing recognition of opportunities to use routinely collected or other secondary health data to answer global health evaluation and research questions. Using such data is a cost-effective way to gain insight into health areas and health system functions. However, many factors affect whether and how these data are used. These include data quality and accessibility, the existing capacity to conduct statistical analysis and interpret findings, and the available resources to guide and support this work. The needs of the United States Agency for International Development (USAID) missions and local partners around these topics, and the resources available to aid analysis, use, and visualization of these data, are unclear.

To fill this knowledge gap, Data for Impact (D4I) conducted a survey with USAID missions and implementing partners (IPs) to better understand the perceived capabilities, needs, and available resources related to use of routine and other existing data sources to conduct evaluation or other research. We also conducted a review of available online resources to support such data use. This brief shares our findings and makes recommendations for how to better support field needs related to the use of routine and other existing data for evaluation and research.

Methods

Needs Assessment

Two different surveys were distributed to two groups of respondents in January–March 2020. We distributed the first survey, for evaluation and research practitioners in lower- and middle-income countries (LMICs), via D4I's social media accounts and twice via email to 9,457 individuals from the MEASURE Evaluation and D4I evaluation and health information system (HIS) contact groups. The survey contained 23 mostly multiple-choice questions (Appendix A). We asked respondents about their experience using routine or other existing data to answer health evaluation or research questions, the types of requests they had received from funders to do this work, their perceived abilities related to conducting such research, and their perceived needs for strengthening capacity in this area. We received 440 completed survey responses, although some questions were skipped by participants and others did not apply to all respondents; sample sizes reported below vary. Descriptive statistics were calculated in Excel.

In March 2020, on our behalf, USAID sent a second, 14-question survey via email to USAID Mission monitoring and evaluation contacts. We asked respondents about their experience using routine or other existing data to answer health evaluation or research questions, along with their perceptions of local IPs' abilities related to such research and their capacity-strengthening needs on this topic. Eight completed responses were received from the initial email, and no follow-up actions were taken due to shifting priorities related to the COVID-19 response in mid-March. We analyzed the data we did collect using descriptive statistics in Excel.

Resource Review

To understand the resources available to support the use of routine or other existing health data for evaluation or research, we conducted an online review of freely available resources, as well as short courses/training available for a fee. Using Google's "advanced search" engine and PubMed, we performed an Internet search for resources developed from 2000 onward using the search terms in Table 1. We sought English-language resources on using routine or other existing health data in LMICs for evaluation or research.

We included articles on studies that used existing data for evaluation or research results only if they included an explicit methodological lens—for example, specifically noting that an objective of the study was to develop a methodology to use facility-based routine data for the evaluation of programs in a given health area.

Table 1. Resource review search terms

	Search Terms
Must have one from this row	"routine data" OR "secondary data" OR "program data" OR "health information" OR HIS OR HMIS OR RHIS OR eHealth OR "information system" OR "health data" OR "EHR" OR "health record" OR "vital statistics" OR "civil registration" OR "CRVS" OR "vital records" OR "existing data"
AND one from this row	evaluation OR research OR evaluating OR evaluate OR use OR using OR analyze OR analysis OR quality OR assess OR import OR export OR merge OR merging OR visual OR access OR present OR interpret OR disseminate OR dissemination OR "survival analysis" OR "Kaplan-Meier" OR "time series" OR "multivariate analysis" OR regression OR "dose response" OR "propensity score" OR "difference-in-difference" OR "plan" OR disseminate OR dissemination OR review OR ethics OR "ethical" OR IRB OR "review board" OR translate OR translation
AND one from this row	training OR guidance OR tool OR guide OR workshop OR course OR eLearning OR handbook OR resource OR framework OR manual OR learn OR consider OR evidence OR plan OR lesson OR instruction

We also reviewed the websites of multilateral organizations, nongovernmental organizations (NGOs), and universities that had produced or published resources on this topic. In the practitioner survey, we asked respondents to tell us about resources they had found helpful for their work in this area.

Three researchers performed the initial search and review from December 2019 to August 2020. For resources with titles that appeared relevant, we read the abstracts or scanned the full documents to determine final relevancy. Next, summary information was abstracted from relevant resources. Finally, one researcher re-reviewed all of the resources to confirm final relevance.

Limitations

There were several limitations to the assessment. The sample size for the Mission survey was too small for us to be able to draw meaningful conclusions regarding Mission staff opinions and needs. The results we present here include a summary of questions to which there were at least five responses, but we do not draw conclusions from these in the Discussion. In addition, our search was limited to online and English-language resources. Finally, it is possible that the practitioner responses were subject to selection bias, with practitioners who had experienced difficulties in using existing data potentially being more likely to respond to the survey. Therefore, it is possible that our results suggest greater challenges in using existing data for research and evaluation and greater interest in support on the topic than is the reality.

Results

Practitioner Survey

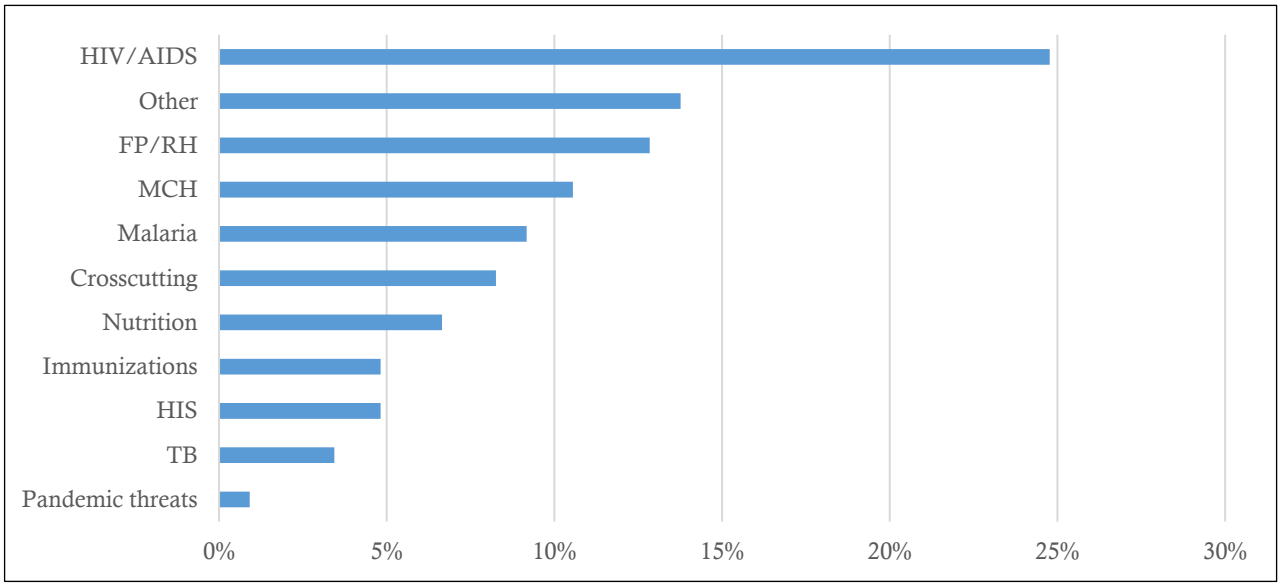
Characteristics

Most practitioners (76%) reported primarily working in Africa (Table 2). They most frequently worked in HIV and AIDS (25%), followed by family planning/reproductive health (13%), maternal and child health (11%), and malaria (9%) (Figure 1). The majority of practitioners worked for local or international NGOs (41%) or government ministries (25%) (data not shown).

Table 2. Regions where practitioners worked (n=435)

Africa	76%
Asia	9%
North America	5%
Caribbean or Central America	3%
South America	2%
Middle East	2%
Western Europe	1%
Pacific region/Australia	1%
Multiple regions	1%

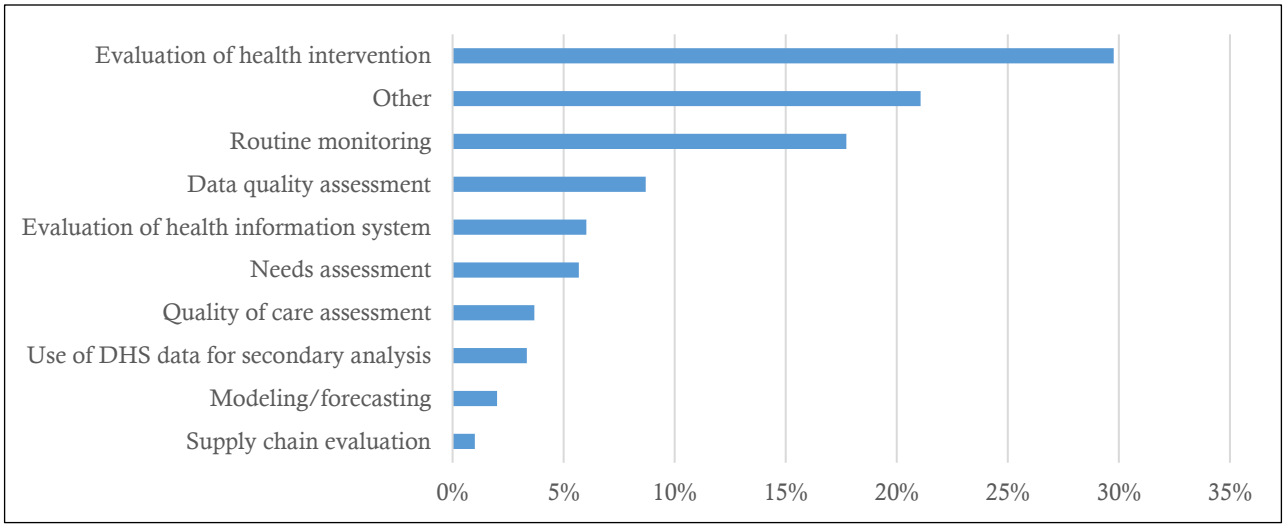
Figure 1. Practitioners' health areas of focus (n=423)



General Experience and Confidence in Using Existing Data

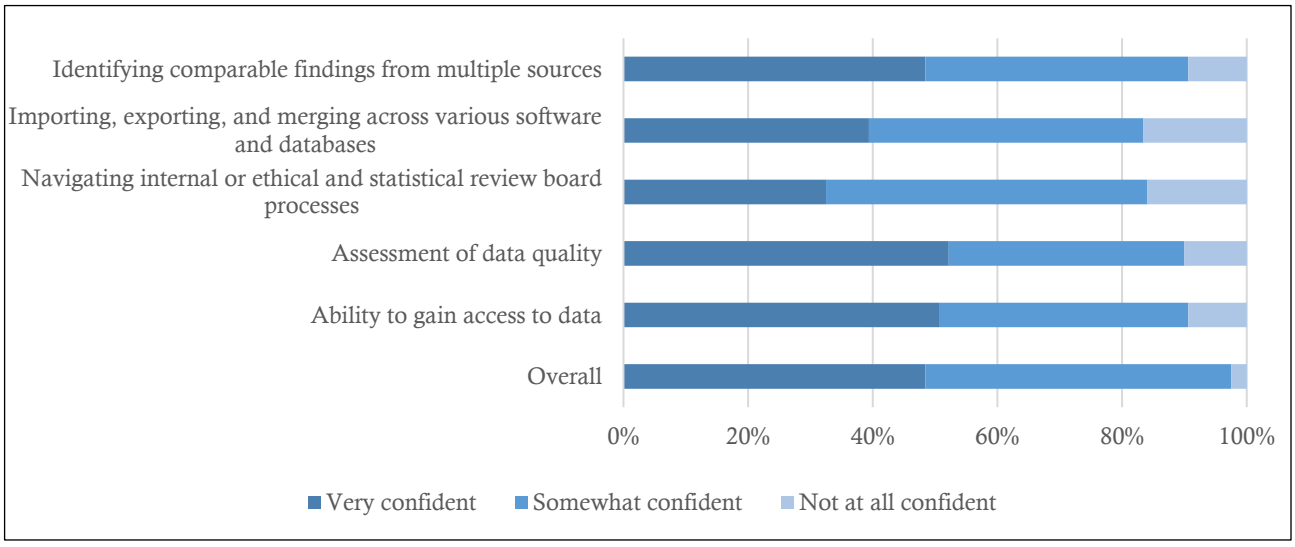
Eighty-five percent of respondents reported having used routine data and/or other secondary data for evaluation or research. As shown in Figure 2, the most commonly reported use was for an evaluation of a health intervention (30%). Respondents also frequently reported having used existing data for monitoring purposes (18%) or data quality assessments (9%). Six percent of respondents reported using such data to evaluate an HIS, while 21 percent described a use categorized as "other"; these included vague responses (e.g., "HIV data") and responses that were difficult to characterize, such as "market research."

Figure 2. Use of routine and/or other secondary data for evaluation or research, among practitioners reporting having used existing data (n=299)



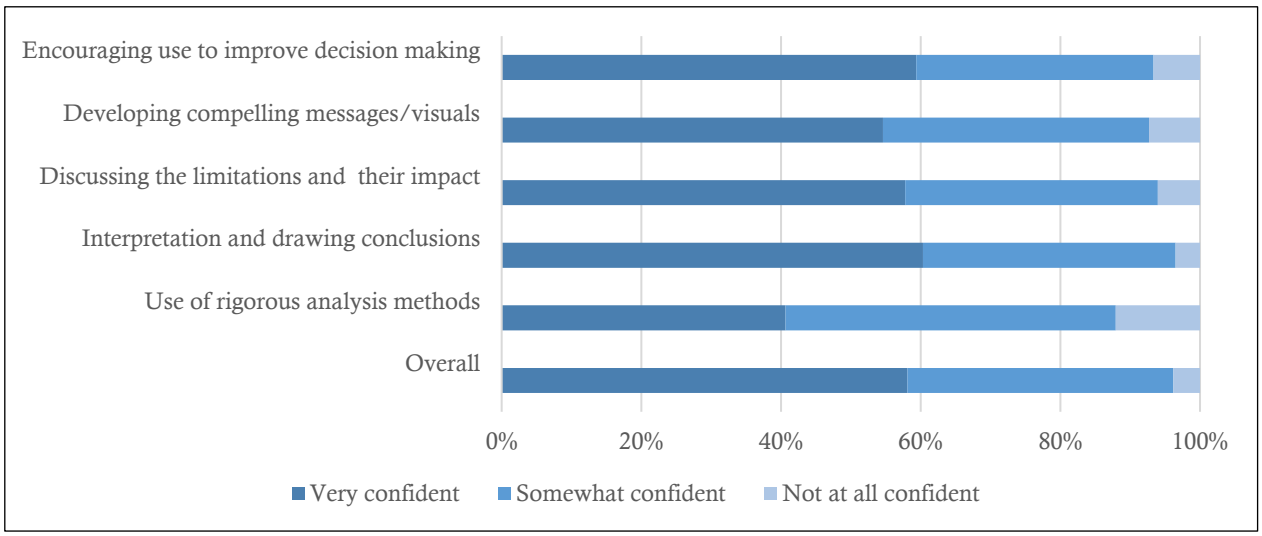
We asked practitioners to describe their confidence in their ability to access and use existing data for evaluation and research purposes. They were most confident in their ability to gain access to data, assess the data quality, and review multiple data sources to identify comparable findings. Respondents were less confident in their ability to import, export, and merge data across various software and databases, as well as to navigate internal or ethical and statistical review board processes (Figure 3).

Figure 3. Confidence in accessing and using routine and other secondary data for evaluation, among practitioners reporting having used existing data (n=320)



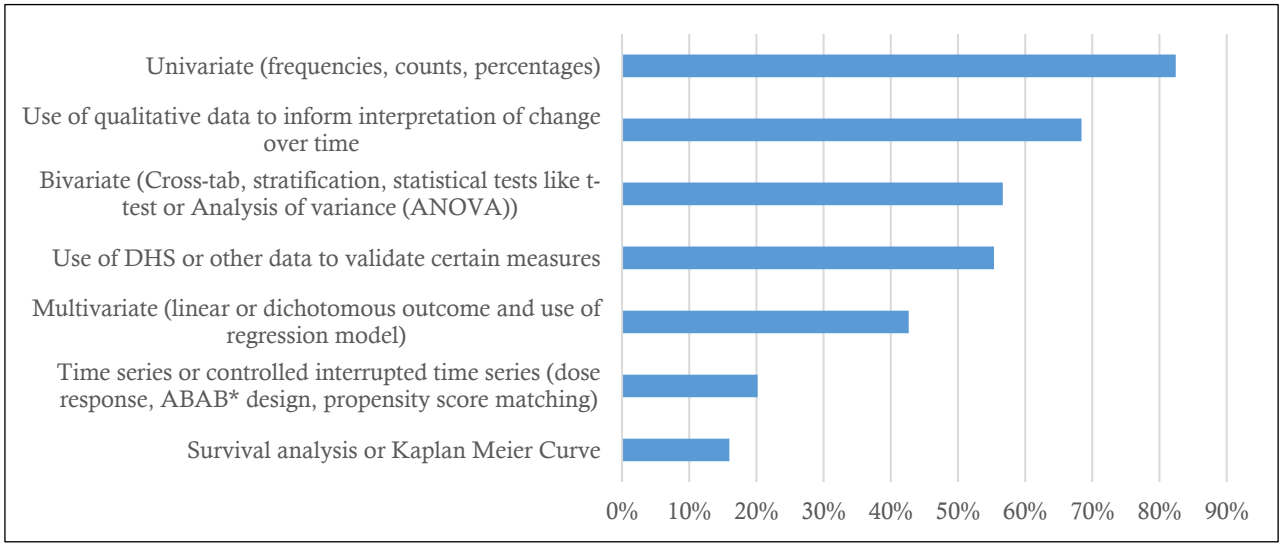
With regard to conducting analysis, sharing results, and encouraging data use, respondents were consistently "very" or "somewhat" confident in their abilities. The use of rigorous analysis methods for these purposes was the exception, with notably fewer respondents reporting confidence in this task (Figure 4).

Figure 4. Confidence in analysis, sharing results, and promoting data use, among practitioners reporting having used existing data (n=315)



When asked about using specific analysis methods, the majority reported having conducted or being comfortable conducting univariate analysis (82%), using qualitative data to inform interpretation (68%), conducting bivariate analysis (57%), and using Demographic and Health Surveys (DHS) or other data sources to validate certain measures (55%) (Figure 5). Less than half of respondents were comfortable conducting multivariate analysis (43%), time series/controlled interrupted design series (20%), or survival analysis/Kaplan Meyer Curve (16%).

Figure 5. Percentage of practitioners who had used/were comfortable with various analysis methods, among those reporting having used existing data (n=307)

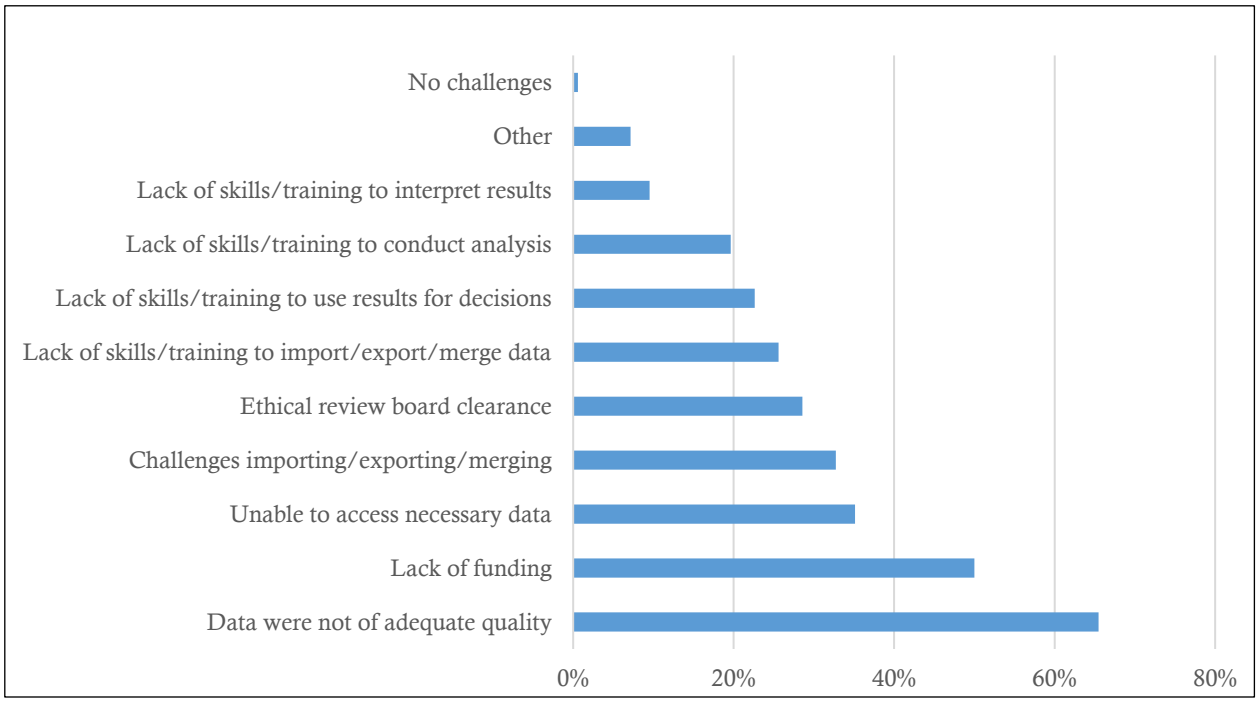


*This design involves having a baseline (the first A), a treatment/intervention measurement (the first B), the withdrawal of treatment/intervention (the second A), and the reintroduction of treatment/intervention (the second B).

Information on Specific Applications

One hundred sixty-three practitioners reported having received specific requests from funders to use routine or other existing data to answer evaluation or research questions. Ninety percent of these respondents reported being able to complete the request, but the vast majority (99%) reported having faced challenges of some kind. The most common challenge was that data were not of adequate quality (66%), followed by lack of funding (50%) and being unable to access necessary data (35%) (Figure 6).

Figure 6. Challenges in use of routine/secondary data for evaluation or research, among practitioners reporting specific requests to use existing data* (n=163)



*Respondents could choose multiple categories.

Respondents were asked to further describe challenges in an open-ended question. Those who had difficulty completing requests discussed problems accessing relevant databases, as well as the lack of a culture of data use that goes beyond routine monitoring. As one respondent described:

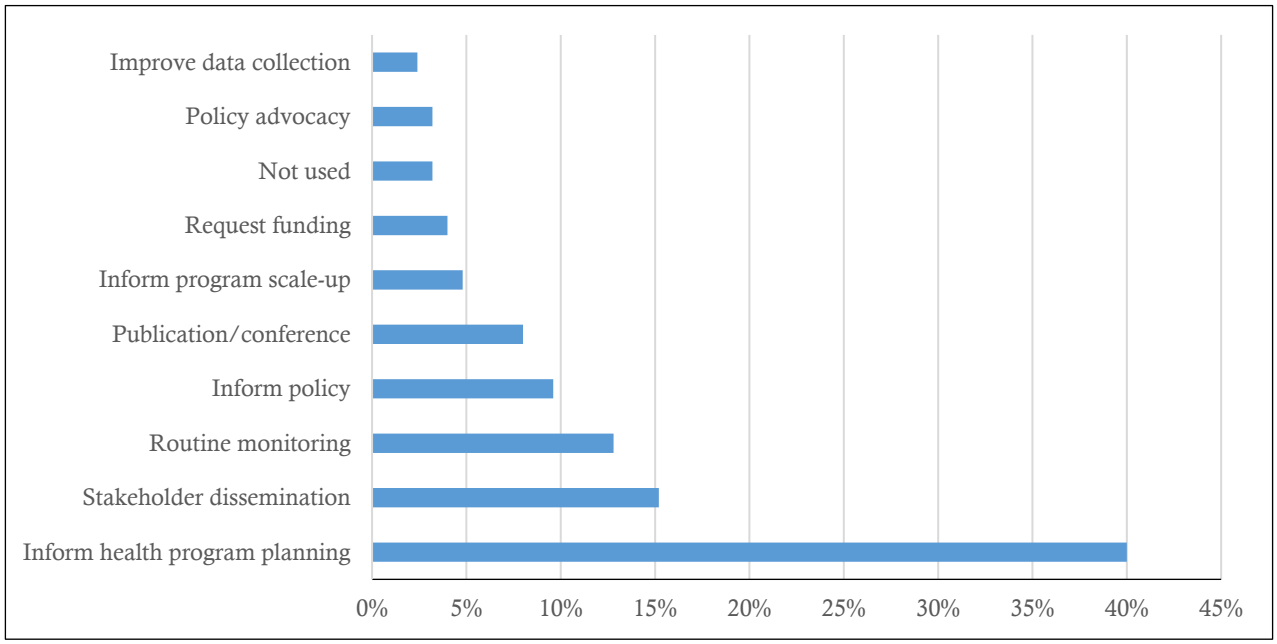
> *Data use, especially by external stakeholders, is difficult to encourage. A project needs to put effort in the beginning to learn stakeholders' data needs and engage with them throughout. This is sometimes beyond an M&E* [monitoring and evaluation] *role. It needs the management to invest in time and financial resources to make data use meaningful.*

Some respondents also described needing additional coaching or training:

> *I do have access to all primary and secondary data through NHIS we have in the department. We also have the government budget to support the activity… I would love to learn from what other similar setting countries have done and what steps* [have been] *taken based on their results, but I truly need coaching or mentoring or lessons sharing from experts.*

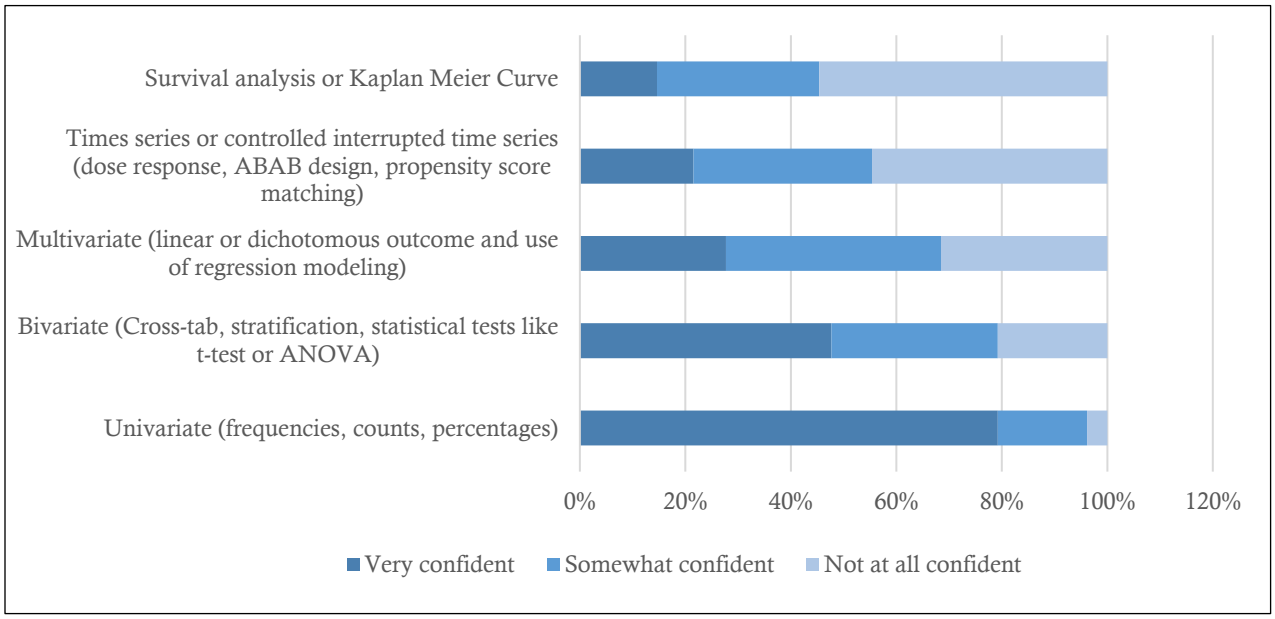
When asked how the results were used, most practitioners reported that they were used to inform health program planning (40%) (Figure 7). This was followed by dissemination to stakeholders (including sharing results with funders or donors, or through quarterly or monthly publications or stakeholder meetings). Thirteen percent indicated that results were used for routine monitoring.

Figure 7. How results were used, among practitioners reporting receiving specific requests to use existing data (n=125)



When asked how confident practitioners were in their analysis abilities for specific methods, the 163 respondents reported being mostly confident using bivariate and univariate methods, but they reported lower confidence levels for more complex methods. They were least confident with time-series/controlled interrupted design-series and survival analysis/Kaplan Meier (Figure 8).

Figure 8. Confidence in use of various analysis methods, among practitioners receiving requests to use existing data (n=130)



Resources

When asked what types of resources they had found most helpful for using routine/secondary data for evaluation, most practitioners reported in-person training events (67%), followed by a website (63%) and online training courses (46%) (respondents could select more than one response). Those who found in-person training helpful listed the following in free-text responses:

- Workshops offered by a local university or IP on specific content areas, including workshops offered by MEASURE Evaluation, FHI 360, and others
- Graduate degree training, or local university short courses
- Mentorship from knowledgeable individuals
- The importance of visuals and hands-on learning techniques

Online training platforms commonly mentioned were Coursera and Massive Open Online Courses (MOOCs). Online resource hubs included MEASURE Evaluation's online resources and the Global Health eLearning Center, among others. Respondents also indicated the value of Google, YouTube, and platforms like Stack Exchange for easy access to information. See Appendix B for a list of resources shared by respondents.

Respondents indicated that they would like to see additional training made available on a variety of topics. The most popular was use of rigorous analysis methods (72%), followed by trainings for assessment of data quality (66%), using results by stakeholders to improve programs (59%), and merging/importing/exporting across databases (59%) (Table 3).

Table 3. Percentage of respondents interested in additional training, by topic* (n=294)

Topic	Percentage
Use of rigorous analysis methods	72%
Assessment of data quality	66%
Use of results by stakeholders to improve program and policy decision making	59%
Importing, exporting, and merging across various software and databases	59%
Reviewing multiple data sources and identifying comparable findings	56%
Developing compelling messages and visual presentations of results	52%
Keeping the analysis plan appropriately aligned to a mix of secondary data sources	52%
Interpretation of secondary data sources and drawing conclusions	49%
Navigating internal or ethical and statistical review board processes	47%
Discussing the limitations of routine and other secondary data and the impact of these on interpretation	45%
Gaining access to data	45%
Using data from a specific disease area	23%

*More than one response was allowed.

Mission Survey Results

The second, more targeted survey was sent out to USAID Mission contacts. Considering the few responses received (eight respondents), we share only the results for questions answered by five or more respondents.

Six of eight respondents reported having requested or reviewed reports from IPs that used routine or other secondary data for evaluation or research. Of the six, specific uses of routine or secondary data sources reported were:

- Mid-term evaluation of a health service delivery project
- Routine data being reported in quarterly reports to inform work planning
- A government-to-government agreement to review the findings of verified data for the Ministry of Health
- Health systems assessment to determine the capacity to collect, report, and use data for decision making and to determine readiness for leading change in the sector
- Support for further analysis of survey data like the DHS or urban health survey

Respondents who requested that IPs use routine or other secondary data for evaluation or other research reported the following challenges for partners:

- Data not of adequate quality (n=2)
- Challenges importing, exporting, and/or merging across various software and databases (n=2)
- Lack of skills/training to conduct analysis (n=2)
- Lack of skills/training to develop compelling messages and visual presentation of results (n=2)

We asked respondents whether they thought additional training/resources were needed for IPs to use routine or other secondary data for evaluation and research. Five responded, all five of whom reported the need for such training/resources, especially training to use rigorous analysis methods and develop compelling messages and visual presentations of results.

Resource Review

To assess whether sufficient resources were available to support user needs, we performed a search for existing online resources to support evaluations and research using routine or other secondary data. We located 35 unique resources. The most common categories of resources were analyzing/working with specific health area data (14 resources), overall design (seven resources), and use of results (five resources). The resources mostly comprised guidance and discussion documents (27 resources). There were, however, two online courses, one spatial data quality assessment tool, one resource that included an online forum, and three training toolkits.

Table 4 shows the distribution of the identified resources across the different topics. Two of the seven design resources covered evaluation design generally but also included discussion about the importance of and/or considerations in including routine and other existing data in evaluation designs (USAID, 2013; Peersman, 2014). Ashton et al.'s (2020) article set out key concepts and examples from a framework for evaluating malaria programs, highlighting the role of routine data for these purposes. The remaining four design resources focused solely on using routine data for evaluation, sharing strengths and limitations, and recommendations for use (Wagenaar, Sherr, Fernandes, & Wagenaar, 2016; Saunders-Hastings, 2018; Clarke, Conti, Wolters, & Steventon, 2019; D4I, 2020).

We located two resources related to data availability and access. These presented information on sources of data and considerations for their use (Cheng & Phillips, 2014; Mbondji, et al., 2014).

The two ethics-related resources located shared information useful for exploring the ethical and privacy principles related to research and evaluation with "big data" (Berman & Albright, 2017) and routinely collected medical data (de Lusignan, et al., 2015). There were many additional documents on these topics in higher-income country settings that were excluded due to our study's inclusion criteria.

Numerous resources were available on data quality assessments for the purpose of monitoring programs in LMICs, but we only located three that addressed evaluation and research specifically. Two resources addressed the topic of checking data quality in spatial analysis (Moise, Cunningham, & Inglis, 2015; MEASURE Evaluation, 2018b), and the third included guidance on how to address common data quality issues encountered when using routine data in evaluation (Silvestre, 2020).

We located two resources relevant to merging/linking data. Both offered practical instructions. One resource consisting of guidance on the DHS website discussed how to merge DHS data (DHS, n.d.). The other resource comprised a set of training materials on linking geospatial data (MEASURE Evaluation, 2012).

Data analysis resources predominantly focused on specific health areas. Two addressed data analysis more broadly—providing general guidelines for conducting secondary analysis (Chang & Phillips, 2014) and training materials on analyzing spatial data (MEASURE Evaluation, 2012). The remaining analysis resources focused on working with specific health area data on HIV, malaria, quality of care, service use, and maternal, neonatal and child health. Most of the analysis resources also discussed the limitations and strengths of working with routine and other existing data.

We found five resources related to the use of results by stakeholders. Four comprised online courses or training materials (MEASURE Evaluation, 2011; USAID, 2011; Nybro, 2014; MEASURE Evaluation, 2018b). The latter was a quick reference guide to communicating health information and included discussion on sharing results from studies using existing data (MEASURE Evaluation, 2009).

There were notable gaps in resources on creating analysis plans, data visualization and other ways to develop compelling messages, interpretation of secondary data sources, reviewing multiple data and identifying comparable findings, and gender integration.

Table 4. Resources for using routine and other existing data for evaluation or research, by topic*

Overall design	7
Data access	2
Data quality assessment	3
Ethical considerations	2
Merging datasets	2
Analyzing data	4
Analyzing specific health area data	
HIV	1
Malaria	7
Maternal, neonatal, and child health	3
Quality of care	2
Service use	1
Use of results by stakeholders	5

*Four resources are listed in multiple categories.

See Appendix C for the complete list of online resources identified in the review.

Discussion

The following key themes emerged from the survey results and resource review:

There are challenges in the use of routine data. Practitioners noted that data quality was a common challenge, as was a lack of funding to support this work. They also reported commonly encountering issues with being able to access the data and trouble importing/exporting/merging data across various software and databases. They were less likely to report that a lack of training or skills to analyze or interpret data posed challenges, although this contradicted what they reported in terms of confidence in their abilities. Most practitioners indicated being somewhat or very confident in their abilities to use routine or secondary data. However, when it came to specific analysis methods, confidence varied and decreased as analysis methods become more complex.

Greater support for data analysis and visualization and use of results is needed. The majority of practitioners indicated that training on the use of rigorous analysis methods was needed. Two-thirds of practitioners also expressed that more training was needed on data quality assessment, and more than half wanted training related to analysis planning and on identifying comparable findings between multiple data sources, use of results to inform program and policy decision making, working across various software and databases, and developing compelling messages and visual presentation of results.

Online resources to support the use of routine and other existing data in LMICs for evaluation or research were limited. We located only 35 resources on the use of routine and other secondary data, most of which were guidance or discussion documents. There was a notable absence of resources on creating analysis plans, developing compelling messages and data visualization, interpretation of secondary data sources, reviewing multiple data sources and identifying comparable findings, and gender integration. For data quality assessments in research and evaluation, we found only one resource addressing the topic for nonspatial data. Nearly half of the resources addressed some aspect of analysis, and most of these were focused on malaria. None of the analysis resources were courses or curricula.

There were many general resources, such as data analysis courses on Coursera or EdX, but these were rarely targeted to practitioners in LMICs working with routine and other existing data. There were also numerous resources for LMIC monitoring staff working with such data, such as data quality assessment toolkits to help improve data quality and data use tools to improve stakeholder use of routine data in program decision making. Evaluators and researchers may use monitoring-focused resources to understand potential data quality concerns and glean tips on how to improve stakeholders' use of research and evaluation results. It is not time efficient, however, to parse through materials that are not developed for evaluation or research, nor do these materials cover specific issues that may arise in these contexts.

There are gaps between practitioners' needs and available online resources. Several key topic areas had no corresponding resources: analysis planning, developing compelling messages and data visualization, and identifying comparable findings between multiple data sources. Others had only a few corresponding resources: data quality assessment, importing/exporting/merging data, and working across different databases and software. Furthermore, gender integration is an important cross-cutting area for USAID, but we did not locate any resources on addressing gender integration in LMIC evaluations or research using existing data.

Recommendations

For USAID

- **Encourage the use of routine and other existing data when requesting research and evaluation**. Half of practitioners noted that lack of funding for this work was a challenge. Donors and governments have made significant investments to improve the quality of existing data, particularly routine data. Maximizing the use of existing data beyond monitoring increases the return on investment.
- **Continue investment in efforts to improve data quality.** Two-thirds of practitioners reported that poor data quality was an impediment to using existing data. Even considering the major investments in recent decades to improve data quality, work remains to be done.
- **Assist IPs to access data.** About a third of practitioners reported access to data as a challenge. USAID missions can support IPs' efforts to secure data by advocating with local government, other funders, programs, and private entities, as well as by providing model data-use agreements for adaptation.
- **Support capacity strengthening** of local research and evaluation partners on use of existing data **by commissioning the development of online resources and sponsoring training** on the gap topics identified:
    - Data quality
    - Analysis planning
    - Gender integration
    - Developing compelling messages and visual presentation of results
    - Reviewing multiple data sources and identifying comparable findings
    - Courses for advanced data analysis methods
    - Merging/importing/exporting data and working across databases and software

For implementing partners addressing capacity strengthening in research and evaluation

- Based on the gaps in the topic areas identified above, **develop online courses and/or other resources aimed at LMIC researchers and evaluators using routine and other existing data.**
- **Conduct capacity assessments when engaging with local research and evaluation organizations** for studies using routine or other existing data. Practitioners expressed lower confidence in some key skills, such as advanced data analysis. Identifying capacity-strengthening needs at the beginning of the project and proactively addressing them can help to minimize challenges before they become insurmountable.

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Appendix A. Surveys

Use of Routine and Other Secondary Health Data for Evaluation and Research

Start of Block: Default Question Block

Q1. The purpose of this survey is to gather information about your experience using routine and other secondary health data for evaluations and research. This survey will take about 10–15 minutes to complete.

Routine data are collected by a health system or health project at regular intervals, usually for monitoring purposes. This may include data from a health management information system (HMIS), a lab information system, community-based information system, program monitoring system, electronic medical records, or other sources.
Other secondary data sources may include one-time data collection activities such as special surveys, Demographic and Health Surveys (DHS), censuses, the Multiple Indicator Cluster Survey, and Service Provision Assessments.

Evaluations assess the strengths and weaknesses of programs, policies, personnel, products, and organizations to improve their effectiveness.
Research generates or contributes to generalizable knowledge.
Both evaluation and research can be conducted through a number of different methods.

Page Break

Q2. In what region do you primarily work?

- ○ Africa
- ○ Asia
- ○ Eastern Europe
- ○ Western Europe
- ○ Caribbean
- ○ Central America
- ○ North America
- ○ South America
- ○ Pacific Islands/Australia
- ○ Middle East
- ○ Other _____

Q3. For what organization or entity do you work? (e.g., Ministry of Health, UNICEF, etc.)

_____

Page Break

Q4. What is your role/position/title within your organization?

_____

Q5. In what health area do you mostly work? Please choose one.

- ○ Malaria
- ○ Tuberculosis
- ○ Maternal and child health
- ○ Immunizations
- ○ HIV/AIDS
- ○ Family planning/reproductive health
- ○ Emerging pandemic threats
- ○ Nutrition
- ○ Other _____

Page Break

Q6. Do you have experience using routine data and/or other secondary data for evaluations or other research?

- ○ Yes
- ○ No

Q7. Please describe any specific evaluations or research you have been involved in that used routine and/or secondary data.

_____

Page Break

Q8. Have you received requests or responded to proposal/bid requests to use routine or other secondary data to answer evaluation questions?

- ○ Yes
- ○ No

Q9. From whom have you received requests or responded to proposals/bids?

- ○ International organizations or multilateral donors
- ○ Bilateral donors
- ○ National donors or organizations
- ○ Foundations
- ○ National government
- ○ Other _____

Page Break

Q10. How confident are you in your abilities to access and use routine/secondary data for evaluation/research purposes?

	Not at all confident	Somewhat confident	Very confident
Overall	○	○	○
Ability to gain access to data	○	○	○
Assessment of data quality	○	○	○
Navigating internal or ethical and statistical review board processes	○	○	○
Importing, exporting, and merging across various software and databases	○	○	○
Reviewing multiple data sources and identifying comparable findings	○	○	○

Page Break

Q11. How confident are you in your ability to conduct analysis, share results, and encourage data use when using routine and/or other secondary data for evaluation or other research purposes?

	Not at all confident	Somewhat confident	Very confident
Overall	○	○	○
Use of rigorous analysis methods	○	○	○
Interpretation of secondary data sources and drawing conclusions	○	○	○
Discussing the limitations of routine and other secondary data and the impact of these interpretation	○	○	○
Developing compelling messages and visual presentations of the results	○	○	○
Encouraging use of results by stakeholders to improve program and policy decision making	○	○	○

Page Break

Q12. If you received a request or were granted a project to use routine and/or other secondary data for evaluation or other research, which of the following posed challenges? Please select all that apply.

- [ ] Lack of funding
- [ ] Unable to access necessary data
- [ ] Data were not of adequate quality
- [ ] Challenges with ethical or statistical review clearance
- [ ] Challenges importing, exporting, and/or merging across various software and databases
- [ ] Lack of skills/training to import/export/merge data
- [ ] Lack of skills/training to conduct analysis
- [ ] Lack of skills/training to interpret results
- [ ] Lack of skills/training to use of results to improve program and policy decision making
- [ ] Other _____
- [ ] No challenges

Page Break

Q13. If you received a request or were granted a project to use routine and/or other secondary data for evaluation or other research, were you able to complete the project?

- ○ Yes
- ○ No

Q14. Please explain.

_____

Q15. If you completed a project using routine and/or other secondary data for evaluation or research, how were the results used?

_____

Page Break

Q16. What methods have you used or what methods are you comfortable using to conduct research or evaluation? Please select all that apply.

- ☐ Univariate (frequencies, counts, percentages)
- ☐ Bivariate (Cross-tab, stratification, statistical tests like t-test or ANOVA
- ☐ Multivariate (linear or dichotomous outcome and use of regression model)
- ☐ Time series or controlled interrupted time series (dose response, ABAB[1] design, propensity score matching)
- ☐ Survival analysis or Kaplan Meier Curve
- ☐ Use of DHS or other data to validate certain measures
- ☐ Use of qualitative data to inform interpretation of change over time
- ☐ Other _____

[1]This design involves having a baseline (the first A), a treatment/intervention measurement (the first B), the withdrawal of treatment/intervention (the second A), and the re-introduction of treatment/intervention (the second B).

Q17. How confident are you in your abilities to use the following methods to conduct research or evaluation using routine or other secondary data sources?

	Not at all confident	Somewhat confident	Very confident
Univariate (frequencies, counts, percentages)	○	○	○
Bivariate (Cross-tab, stratification, statistical tests like t-test or ANOVA)	○	○	○
Multivariate (linear or dichotomous outcome and use of regression modeling)	○	○	○
Times series or controlled interrupted time series (dose response, ABAB design, propensity score matching)	○	○	○
Survival analysis or Kaplan Meier Curve	○	○	○
Other	○	○	○

Page Break

Q18. In your work using routine date for evaluation, what resources have you found helpful? For any choices you select, please describe the specific resource(s).

- ☐ A website _____
- ☐ An in-person training event or workshop _____
- ☐ An online training site or course _____

Page Break

Q19. In order to support use of routine or other secondary data sources for evaluation/research, on which topics would you like to see additional training or resources?

- ☐ Gaining access to data
- ☐ Assessment of data quality
- ☐ Use of rigorous analysis methods
- ☐ Navigating internal or ethical and statistical review board processes
- ☐ Importing, exporting, and merging across various software and databases
- ☐ Reviewing multiple data sources and identifying comparable findings
- ☐ Keeping the analysis plan appropriately aligned to a mix of secondary data sources
- ☐ Interpretation of secondary data sources and drawing conclusions
- ☐ Discussing the limitations of routine and other secondary data and the impact of these on interpretation
- ☐ Developing compelling messages and visual presentations of results
- ☐ Use of results by stakeholders to improve program and policy decision making
- ☐ Other _____
- ☐ Using data from a specific disease area (please name disease area): _____

Page Break

Q20. Do you see an opportunity for future use of routine data to answer evaluation questions?

- ○ Yes
- ○ No

Q21. Please explain.

_____

Page Break

Q22. Is there a specific disease area or topics that you feel is better suited for use of routine in evaluation or research?

- ○ Yes
- ○ No

Q23. Which disease or health areas are better suited for use of routine data in evaluation or research?

- ○ Malaria
- ○ Tuberculosis
- ○ Maternal and child health
- ○ Immunizations
- ○ HIV/AIDS
- ○ Family planning/reproductive health
- ○ Emerging pandemic threats
- ○ Nutrition
- ○ Other _____

Page Break

Q24. Is there anything else you would like us to know about the use of routine or secondary data to conduct evaluations and/or research?

_____

_____

_____

_____

_____

End of Block: Default Question Block

D4I Mission Survey

Start of Block: Default Question Block

Q1. The purpose of this survey is to better understand:

- The needs of **USAID Mission Staff** in reviewing and using results from evaluations and other research that use routine and other secondary health data.
- The needs of local **implementing partners** in using routine and other secondary health data for evaluations and other research. This survey will take about 10 minutes to complete.

Relevant definitions:
Routine data are collected by a health system or health project at regular intervals, usually for monitoring purposes. This may include data from a health management information system (HMIS), a lab information system, community-based information system, program monitoring system, electronic medical records, or other sources.
Other secondary data sources may include one-time data collection activities such as special surveys, Demographic and Health Surveys (DHS), censuses, the Multiple Indicator Cluster Survey, and Service Provision Assessments.
Evaluations assess the strengths and weaknesses of programs, policies, personnel, products, and organizations to improve their effectiveness.
Research is a process of systematic investigation of a topic to generate or contribute to generalizable knowledge. Both evaluation and research can be conducted through a number of different methods.

Page Break

Q2. In what country or region do you primarily work?

_____

Q3. What is your role in your job?

- ○ Monitoring and evaluation
- ○ Strategic information
- ○ Program management/support
- ○ Other, please describe: _____

Page Break

Q4. In your current role, have you requested or reviewed reports from **implementing partners** that have used routine or other secondary data for evaluations or research?

- ○ Yes
- ○ No

Q5. Please describe any specific evaluations or research you have requested or reviewed using routine or other secondary data.

_____

Page Break

Q6. In general, how confident are you in the ability of **Mission Staff** to critique, interpret, and/or use findings from implementing partners **using routine or other secondary data** for evaluation and research?

	Very confident	Somewhat confident	Not at all confident
Overall	○	○	○
Ability to assess the quality of the data	○	○	○
Ability to assess whether appropriate analysis methods were used	○	○	○
Ability to interpret and critique findings using data	○	○	○
Understanding the limitations of routine and other secondary data and the impact of these on interpretation	○	○	○
Using the results to make decisions	○	○	○
Communicating results to local stakeholders	○	○	○
Other	○	○	○

Page Break

Q7. Do you feel that additional training/resources are needed to support **Mission Staff** (yourself and others) to be able to critique, interpret, and/or use routine or secondary data for evaluation and research purposes?

- ○ Yes
- ○ No

Q8. In order to support the use of routine or other secondary data sources for evaluation/research by **Mission Staff**, on which topics would you like to see additional training or resources?

- ☐ Assessing the quality of the data used
- ☐ Assessing whether appropriate analysis methods were used
- ☐ Interpretation of and critique of findings using routine or other secondary data sources
- ☐ Discussing the limitations of routine and other secondary data and the impact of these on interpretation
- ☐ Using results to make decisions
- ☐ Communicating results to local stakeholders
- ☐ Other _____

Page Break

Q9. Do you feel that additional training/resources are needed for **implementing partners** to be able to use routine or other secondary data for evaluation and research?

- ○ Yes
- ○ No

Q10. In order to support the use of routine or other secondary data sources for evaluation/research by **implementing partners**, on which topics would you most like to see additional training or resources?

- ☐ Gaining access to data
- ☐ Assessment of data quality
- ☐ Use of rigorous analysis methods
- ☐ Navigating internal or ethical and statistical review board processes
- ☐ Importing, exporting, and merging across various software and databases
- ☐ Reviewing multiple data sources and identifying comparable findings
- ☐ Keeping the analysis plan appropriately aligned to a mix of secondary data sources
- ☐ Interpretation of routine or other secondary data sources and drawing conclusions
- ☐ Discussing the limitations of routine and other secondary data and the impact of these on interpretation
- ☐ Developing compelling messages and visual presentations of results
- ☐ Engaging stakeholders to encourage use of findings to improve program and policy decision making
- ☐ Other _____
- ☐ Using data from a specific disease area (please name disease area): _____

Page Break

Q11. If you have requested that **implementing partners** use routine or other secondary data for evaluation or other research, which of the following have posed challenges **for partners**? Please select all that apply.

- ☐ Inadequate funding to complete the work
- ☐ Unable to access necessary data
- ☐ Data were not of adequate quality
- ☐ Challenges with ethical or statistical review clearance
- ☐ Challenges importing, exporting, and/or merging across various software and databases
- ☐ Lack of skills/training to import/export/merge data
- ☐ Lack of skills/training to conduct analysis
- ☐ Lack of skills/training to interpret results
- ☐ Lack of skills/training to develop compelling messages and visual presentation of results
- ☐ Lack of skills/training to engage with stakeholders to encourage use of findings to improve program and policy decision making
- ☐ Other _____
- ☐ No challenges

Q12. Please explain.

_____

Page Break

Q13. Do you see an opportunity for future use of routine or other secondary data to answer evaluation/research questions?

- ○ Yes
- ○ No

Q14. Please explain.

_____

Page Break

Q15. Is there anything else you would like us to know about **Mission staff** capacity to review and/or use results from evaluations and other research that use routine or other secondary health data?

_____

_____

_____

_____

_____

Q16. Is there anything else you would like us to know about **implementing partner** capacity to use routine or other secondary data in evaluation and other research?

_____

End of Block: Default Question Block

Appendix B. Resources Shared by Respondents

Online resource hubs	UCLA Institute for Digital Research and Education	https://stats.idre.ucla.edu/stata/
	Claremont College Evaluation Center	https://research.cgu.edu/claremont-evaluation-center/
	Global Health eLearning Center (USAID)	https://www.globalhealthlearning.org/
	World Bank Group – Evaluations website	https://ieg.worldbankgroup.org/evaluations
	UNFPA – Using Data to Analyze Progress in Reproductive Health	https://www.unfpa.org/news/using-data-analyze-progress-reproductive-health
	WHO resource on immunization data	http://apps.who.int/immunization_monitoring/globalsummary
	UNICEF resources for evaluators and partners	https://www.unicef.org/evaluation/resources
	WHO Health Equity Assessment Toolkit	https://www.who.int/gho/health_equity/assessment_toolkit/en/
	MEASURE Evaluation	https://www.measureevaluation.org
	JSI e-Learning website	https://elearning.jsi.com/
	DHIS2 website, DHIS2 Training Land	https://www.dhis2.org http://dhis2trainingland.com/
Website with aggregate, compiled, publicly available	UNAIDS Key Population Atlas	http://kpatlas.unaids.org/dashboard
	DHS	https://dhsprogram.com/
	PEPFAR panorama	https://pepfar-panorama.org/pepfarlanding/#login
	World Bank Group – Evaluations website	https://ieg.worldbankgroup.org/evaluations
	National statistical office websites	Various, by country
	AIDSinfo	https://aidsinfo.nih.gov/#
	CIA World Factbook	https://www.cia.gov/library/publications/the-world-factbook/
Online training platforms	Udemy	https://www.udemy.com/
	Stanford Online	https://online.stanford.edu/courses-programs
	Coursera	https://www.coursera.org/
	DataCamp	https://www.datacamp.com
	edX	https://www.edx.org/
	Massive Open Online Courses (MOOCs)	https://www.mooc.org/
Other	Existing literature, including through PubMed	https://www.ncbi.nlm.nih.gov/pubmed/
	Stack Exchange	https://stackexchange.com/
	YouTube	https://www.youtube.com/
	GitHub	https://www.github.com/
	Google, including Google Scholar	https://www.google.com/

Appendix C. Resources for the Use of Routine and Other Existing Data in Evaluation and Research

Technical Area	Resource	Description
Overall Design	Impact Evaluation Overview: Data Collection and Analysis Methods in Impact Evaluation Strengths, Limitations and Examples of Use (Peersman, 2014)	This UNICEF methodological brief provides an overview of the issues involved in choosing and using methods for impact evaluations of the intended and unintended long-term effects produced by programs or policies. The authors discuss the importance of maximizing the use of existing data. (Peersman, 2014)
	Using Routine Health Information Systems for Well-designed Health Evaluations in Low- and Middle- Income Countries (Wagenaar, Sherr, Fernandes, & Wagenaar, 2016)	This article explores the value of routine health information system (RHIS) data use in evaluation and considers design elements favoring RHIS data for health evaluations, using a case study from Mozambique.
	Technical Note: Mixed-Methods Evaluations (USAID, 2013)	This Technical Note provides guidance to USAID staff and partners on how mixed-method evaluations are conducted and important considerations when managing a mixed-method evaluation. Use of existing data is addressed.
	Evaluating the Impact of Healthcare Interventions Using Routine Data (Clarke, Conti, Wolters, & Steventon, 2019)	This article provides guidance to those wishing to commission, interpret, or perform an impact evaluation of a health intervention and highlights considerations and key concepts related to design, analysis, implementation, and interpretation.
	DHIS2 as a Tool for Health Impact Assessment in Low-Resource Settings: Examining Opportunities for Expanding Use of Routine Health Data (SH, Perrin, Nielsen, Sæbø, & Uggowitzer, 2018)	The authors position DHIS2 within a framework of health impact assessments to examine how expanded use of the DHIS2 platform could support needs assessments and program evaluations .
	A Practical Guide to Using Routine Data in Evaluation (D4I, 2020)	This guidance document presents a summary of 13 related technical briefs on topics such as why routine data were used, the main challenges, what worked well, and recommendations based on what was learned. The document was prepared to provide guidance to future evaluators and researchers considering using routine data.
	Evaluating Malaria Programmes in Moderate- and Low-Transmission Settings: Practical Ways to Generate Robust Evidence (Ashton, et al., 2020)	This article describes key concepts and examples from a framework for evaluation in low-, moderate-, or heterogeneous-transmission settings for malaria. It describes the importance of quality routine surveillance data for evaluation, improved methods for impact evaluation of malaria programs in low- and moderate-transmission contexts, and considerations for triangulating impact and process evaluation findings.

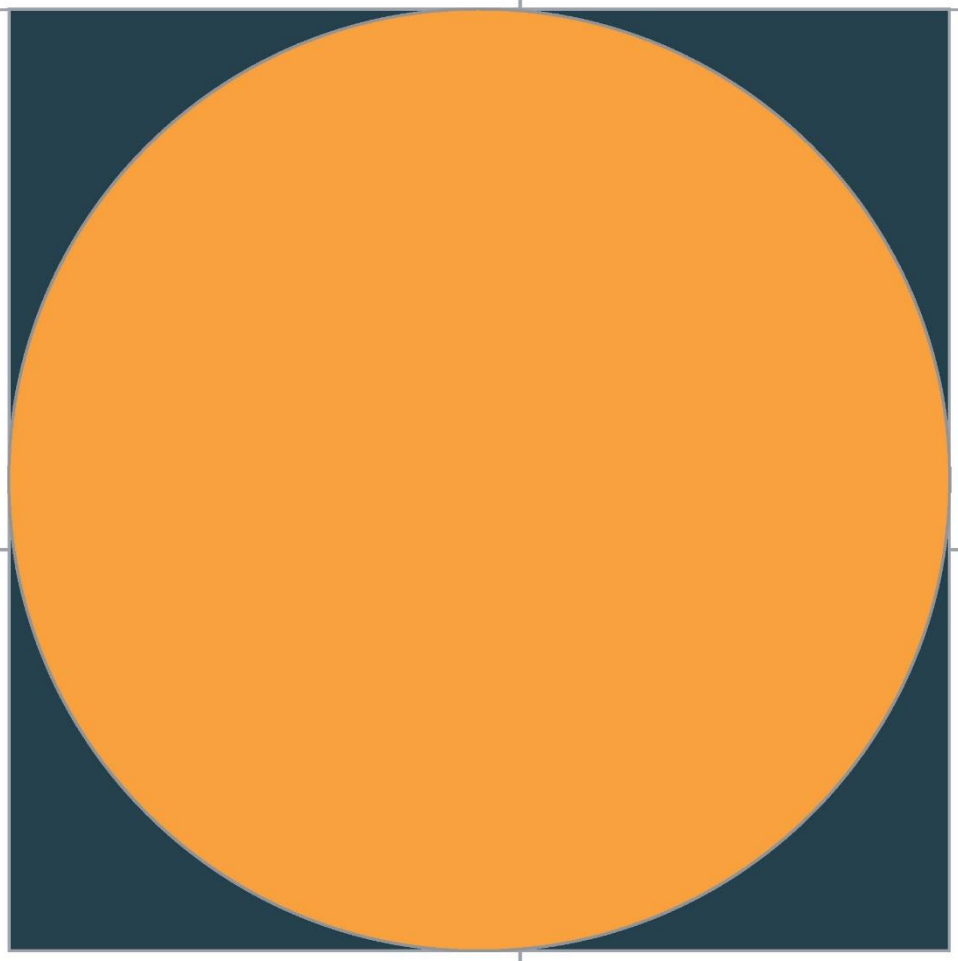
Technical Area	Resource	Description
Assessing Data Quality	Geospatial Analysis in Global Health: A Process Guide to Monitoring and Evaluation for Informed Decision Making (Moise, Cunningham, & Inglis, 2015)	This guide provides an overview of how to select appropriate geospatial analysis techniques to help overcome the drawbacks of commonly used monitoring and evaluation (M&E) data, examples of ways to apply geospatial analysis within the context of M&E, and resources for additional information.
	A Practical Guide to Using Routine Data in Evaluation (D4I, 2020)	This guidance document presents a summary of 13 related technical briefs on topics such as why routine data were used, the main challenges, what worked well, and recommendations based on what was learned. The document was prepared to provide guidance to future evaluators and researchers considering using routine data.
	Spatial Quality and Anomalies Diagnosis (SQUAD) Tool (MEASURE Evaluation, 2018b)	The SQUAD Tool can rapidly identify the presence of certain anomalies with spatial data, which can then be investigated further to determine if there is a data quality issue.
Ethics	Using Routinely Collected Health Data for Surveillance, Quality Improvement and Research: Framework and Key Questions to Assess Ethics and Privacy and Enable Data Access (de Lusignan, et al., 2015)	This article presents a comprehensive framework for defining the ethical and privacy status of projects and for providing guidance on data access.
	Children and the Data Cycle: Rights and Ethics in a Big Data World (Berman & Albright, 2017)	"Big data" are increasingly available for secondary research, and children are one of the major generators of these data. The authors outline their rationale for an increased focus on children's rights and ethics in data science, and they suggest steps to move forward, focusing on the different players in the data chain, including data generators, collectors, analysts, and end users.
Merging and Linking Data	The DHS Program: Using Datasets for Analysis (DHS, n.d.)	The DHS program website has a collection of resources to help analyze DHS data, including information on merging DHS data sets, how DHS maintains data quality, the use of sample weights, and a variety of other topics. There is also a DHS user forum used for communicating with others regarding the use of datasets.
	Spatial Data Fundamentals (MEASURE Evaluation, 2012)	These training materials help users understand spatial data, geographic identifiers, how to format and link data, and the creation of maps.
Accessing Data	Secondary Analysis of Existing Data: Opportunities and Implementation (Cheng & Phillips, 2014)	This article introduces the rationale for and concept of secondary analysis of existing data, describes several sources of publicly available datasets, provides general guidelines for conducting secondary analyses of existing data, and discusses the advantages and disadvantages of analyzing existing data.
	Health Information Systems in Africa: Descriptive Analysis of Data Sources, Information Products and Health Statistics (Mbondji, et al., 2014)	This article provides a critical review of the availability and quality of health information data sources in African countries, as well as considerations related to various data sources.

Data Analysis	Secondary Analysis of Existing Data: Opportunities and Implementation (Cheng & Phillips, 2014)	This article introduces the rationale for and concept of secondary analysis of existing data, describes several sources of publicly available datasets, provides general guidelines for conducting secondary analyses of existing data, and discusses the advantages and disadvantages of analyzing existing data.
	Geospatial Analysis in Global Health M&E: A Process Guide to Monitoring and Evaluation for Informed Decision Making	This guide provides an overview of how to select appropriate geospatial analysis techniques to help overcome the drawbacks of commonly used M&E data. This guide provides examples of ways to apply geospatial analysis within the context of M&E, along with resources for additional information if needed. (Moise, Cunningham, & Inglis, 2015).
	The DHS Program: Using Datasets for Analysis (DHS, n.d.)	The DHS program website has a collection of resources to help analyze DHS data, including information on merging DHS data sets, how DHS maintains data quality, the use of sample weights, and a variety of other topics. There is also a DHS user forum used for communicating with others regarding the use of datasets.
	Spatial Data Fundamentals (MEASURE Evaluation, 2012)	These training materials help users understand spatial data, geographic identifiers, how to format and link data, and the creation of maps.

Technical Area	Resource	Description
Data Analysis	**Malaria**	
	Evaluating Malaria Programmes in Moderate-And Low-Transmission Settings: Practical Ways to Generate Robust Evidence (Ashton, et al., 2020)	This article describes key concepts and examples from a framework for evaluation in low-, moderate-, or heterogeneous-transmission settings for malaria. It describes the importance of quality routine surveillance data for evaluation, improved methods for impact evaluation of malaria programs in low- and moderate-transmission contexts, and considerations for triangulating impact and process evaluation findings.
	Methodological Considerations for Use of Routine Health Information System Data to Evaluate Malaria Program Impact in an Era of Declining Malaria Transmission (Ashton, et al., 2017)	This paper identifies a range of methodologies that have been used for impact evaluations with malaria outcome indicators generated from HMIS data, including those used to maximize the internal validity of HMIS data. It also provides recommendations on reducing bias in impact estimates.
	A Methodological Framework for the Improved Use of Routine Health System Data to Evaluate National Malaria Control Programs: Evidence from Zambia (Bennett, et al., 2014)	This study used data from the Zambia HMIS to evaluate the association between the intensity of insecticide-treated net programs and monthly district-level confirmed malaria incidence among outpatients. The authors present a framework for evaluating full-coverage malaria programs and child survival programs that rely on HMIS data that controls for variability in different factors such as diagnostic procedures, while accounting for the correlation of these data across space and time.
	Surveillance in Easy to Access Population Subgroups as a Tool for Evaluating Malaria Control Progress: A Systematic Review	This article presents the results of a systematic review of documents reporting validation of estimates of malaria control indicators from EAG surveys. The authors describe options for addressing the context-specific bias that may occur.
	Use of Routine Health Information System Data to Evaluate Impact of Malaria Control Interventions in Zanzibar, Tanzania From 2000 to 2015 (Ashton, et al., 2019)	Using data from Tanzania, this study presents a rigorous approach to the use of HMIS data in evaluating the impact of malaria control interventions. HMIS data from public outpatient facilities were analyzed using interrupted time-series models to estimate the impact of artemisinin-based combination therapy, indoor residual spray, and long-lasting insecticidal nets.
	Routine Data for Malaria Morbidity Estimation in Africa: Challenges and Prospects (Alegana, Okiro, & Snow, 2020)	In this paper, the authors define the current challenges common to routine malaria morbidity data at national levels in Africa and discuss how they can be used in the future to reflect changing disease burdens.
	Caution Is Required When Using Health Facility-Based Data to Evaluate the Health Impact of Malaria Control Efforts in Africa (Rowe, et al., 2009)	Authors discuss key concerns related to using health-facility based data for evaluation. Concerns include data validity and representativeness, the objective of the analysis, and internal consistency between the strength and interpretation of the data.
	HIV	
	Opportunities and Challenges in Conducting Secondary Analysis of HIV Programmes Using Data From Routine Health Information Systems and Personal Health Information (Gloyd, et al., 2016)	This article identifies specific opportunities and challenges with respect to the secondary analysis of RHIS and personal health informationdata and offers recommendations on simplifying data sources, analysis and reporting, and conducting systematic data quality audits.

Technical Area	Resource	Description
Data Analysis	**Service Use**	
	Information for Decision Making from Imperfect National Data: Tracking Major Changes in Health Care Use in Kenya Using Geostatistics (Gething, et al., 2007)	The authors present an approach that allows national changes in health service use to be reliably tracked using imperfect data from a national HMIS. Monthly records were obtained from the Kenyan HMIS for outpatient facilities between 1996 and 2004. A space-time geostatistical model compensated for the large proportion of missing records, allowing estimation of the monthly use of services by outpatients during this period.
	Quality of Care	
	Use of Electronic Health Records to Evaluate the Quality of Care for Hypertensive Patients in Mexican Family Medicine Clinics (Doubova, Lamadrid-Figueroa, & Pérez-Cuevas, 2013)	This article shows that electronic health records can become a source of information to evaluate routine quality of care in developing countries beginning to modernize their health information systems.
	Assessing Healthcare Quality Using Routine Data: Evaluating the Performance of the National Tuberculosis Programme in South Africa (McLaren, Sharp, Zhou, Wasserman, & Nanoo, 2016)	Through an evaluation of the quality of tuberculosis care at health facilities, this article demonstrates a low-cost approach to assessing facility quality of care that can be adapted to other diseases and contexts.
	Maternal and Child Health	
	Using Routine Health Data And Intermittent Community Surveys To Assess The Impact Of Maternal And Neonatal Health Interventions In Low-Income Countries: A Systematic Review (Dossa, et al., 2016)	This review summarizes the breadth of knowledge on using routine data (RHIS and intermittent community surveys [ICS]) for well-designed maternal and neonatal health evaluations in LMICs.
	Measuring Coverage in MNCH: Evaluation of Community-Based Treatment of Childhood Illnesses through Household Surveys (Hazel, Requejo, David, & Bryce, 2013)	The authors assess the extent to which existing household survey data are useful to measure coverage trends for the correct management of childhood illnesses by place of treatment and provider type. They also recommend alternative analysis plans that may be used in contexts where baseline data cannot be used to measure trends in treatment coverage.
	Can a Quality Improvement Project Impact Maternal and Child Health Outcomes at Scale in Northern Ghana? (Singh, et al., 2016)	This evaluation of the Project Five Alive! maternal and child health intervention in Ghana presents a methodology for using facility-based routine health data for a large-scale impact evaluation.

Technical Area	Resource	Description
Stakeholder Use of Data	Data Demand and Use Concepts and Tools: A Training Tool Kit (MEASURE Evaluation, 2018a)	This course from MEASURE Evaluation aims to provide the conceptual basis for data-informed decision making within an organization or program, or at the national, state, or district levels of government.
	High Impact Research Training Tool Kit (MEASURE Evaluation, 2011)	This course from MEASURE Evaluation aims to assist researchers to bridge the research-to-practice gap and provides tips and tools that can be applied to the research process to improve data use.
	Data Use for Program Managers (USAID, 2011)	This online course from the Global Health eLearning Center promotes data use for evidence-based HIV/AIDS program planning and improvement.
	Demographic and Health Surveys: Data Use (Nybro, 2014)	This online course offered by the Global Health eLearning Center provides an overview of the DHS project and data so that program staff, policymakers, and evaluators and researchers are better able to use DHS data to make decisions based on evidence.
	Making Research Findings Actionable: A Quick Reference to Communicating Health Information for Decision-Making (MEASURE Evaluation, 2009)	This document provides a quick reference of suggested communication approaches for health researchers and M&E professionals to facilitate stakeholder use of health information for decision making. It also includes a communication case study of a secondary DHS data analysis activity in Kenya.



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