Information Systems Use

Information systems use is the effective utilization of existing information systems and the data they produce at the facility level to coordinate care, monitor performance, and drive management. Effective information systems use can support a variety of purposes ranging from priority setting to clinical tasks and education. Information systems should be easy to use with clear expectations of use and systems for monitoring and evaluation and should provide easily accessible information to those who use them.

Visual Aid - Information Systems Use

Information Systems Use

- Includes the collection, reporting, and use of data across all levels of the PHC system.

- Effective use of information systems includes...
  - Routine collection of data
  - Interpretation of data
  - Use of data for priority setting and performance monitoring
  - Reporting data to stakeholders
Information Systems Use is a component of Facility Organization & Management
Information Systems Use is a component of Facility Organization and Management.

- Team-Based Care Organization
- Facility Management Capability and Leadership
- Information Systems Use
- Performance Measurement and Management
What can you learn about Information Systems Use from the Improvement Strategies?

**SECTION 1**

**What is Information Systems Use?**

**What it is:** Learn more about the core principles and goals of Information Systems Use and its role in PHC improvement.

**SECTION 2**

**How do I assess my performance?**

**What it is:** Learn more about some indications that improvements might be relevant in your context and what you can achieve by focusing improvements on Information Systems Use.

**Vital Signs Profile:** Use the information in your Vital Signs Profile to help determine relevant areas for improvement.

**SECTION 3**

**How do I get started?**

**What others have done:** Learn from implementation approaches and challenges in other country contexts.

**How to succeed:** Consider your country context, what elements are not functioning properly, and what needs to be in place to support effective improvements.

**What to ask:** Use guiding questions to help determine how you might begin to plan and enact reforms in your country context.

Guided by the above considerations and relevant resources, start to build out an improvement plan with your CE lead and/or focal point.
What can my country achieve by focusing on Information Systems Use?

**Goals & Outcomes**

- **Supports** a variety of purposes ranging from priority setting to clinical tasks to education.

- Can drive **quality improvement** and effective coordination of care at the facility level as well as larger health system planning, monitoring, and improvement.
Information Systems Use – How do I assess my performance?

Learn more about whether you should focus on Team-Based Care Organization in the Vital Signs Profile.
How do I assess my performance?

Completion of a Vital Signs Profile gives countries a holistic understanding of PHC strengths and weaknesses, a critical first step in the measurement for improvement pathway.

Use the information in the Vital Signs Profile to help determine relevant areas of improvement.
How do I assess my performance?

Use the information in the Vital Signs Profile to help determine relevant areas of improvement.
How do I assess my performance?

Use the information in the Vital Signs Profile to help determine relevant areas of improvement.

- Measure 29: Team-Based Care Organization
- Measure 30: Facility Management Capability and Leadership
- Measure 31: Information Systems Use
- Measure 32: Performance Measurement and Management
- Measure 33: Performance Measurement and Management – Supportive Supervision
What are other indications that Information Systems Use might be an appropriate area of focus?

Other Indications

- **Data quality issues**
  Data resulting from Information Systems are missing, incomplete, or poor-quality.

- **Poor staff or user capacity**
  Staff are not appropriately trained or equipped with the requisite infrastructure to use information systems as intended.

- **Poor facility management of information systems use**
  Existing information systems fit poorly into existing staff workflow and the goals of information systems use are poorly communicated to staff.

- **Underutilization or misuse of data**
  Data are not being routinely collected, analyzed and used to drive decision making, performance monitoring, and quality improvement at the facility or health system level.
Learn more about the core principles of Information Systems Use and what you can achieve by focusing improvements in the **What it is** section.
What is Information Systems Use?

**Information systems use** includes the routine collection and reporting of public health and facility data and the use of the data for priority setting, clinical purposes, risk stratification, and performance measurement and management, across all levels of PHC.

Information systems use **moves beyond infrastructure and availability of information systems** to address how systems are being used.
What is Information Systems Use?

Information systems use is the effective utilization of existing information systems and the data they produce at the facility level to coordinate care, monitor performance, and drive management.

Information systems should be easy to use with clear expectations of use and systems for monitoring and evaluation and should provide easily accessible information to those who use them.

Why it’s important

- **Effective coordination of care**
  Effective information systems use enables myriad functions that support facilities and providers to deliver coordinated, high-quality care including routine data collection and disease surveillance, vital events tracking, supervision and monitoring, provider communication, and health-related decision making.

- **Robust performance measurement and management**
  Effective information systems use can help facility managers and leaders track progress towards targets and changes in performance over time and enable efficient management practices.

- **Health system improvement, monitoring and planning**
  Aggregate data generated from robust information systems and information systems use is important for facility and larger health system planning monitoring, and improvement.
**What is Information Systems Use?**

**Key steps and considerations**

**Routine Collection and Interpretation of Data**
Effective use of information systems includes routine collection of high-quality, timely, and relevant public health data, facility data, and patient data and the subsequent analysis of this data.

**Use of data for priority setting and performance monitoring**
Information systems should be used by stakeholders to support performance measurement and management and decision making and planning. This can involve a variety of activities, such as using information systems to track progress towards facility performance targets.

**Reporting data to stakeholders**
Facility leaders should utilize appropriate data from information systems to communicate with stakeholders and support quality improvement and effective decision making and the facility- and health system-level.

**Staff capacity to use information systems**
Staff must be sufficiently trained to capture, report, and review data using existing information system infrastructure.
Information Systems Use includes the collection, reporting, and use of data across all levels of the PHC system.

Effective use of information systems includes...
- Public health data
- Facility data
- Patient data

... and requires...
- Sufficient staff capacity...
- ...to capture, report, and review data using existing information system infrastructure.

Central considerations are:
1. Technical – What kind of technology is used for information systems and how do these fit within existing data collection systems.
2. Behavioral – How can staff be trained to use the technical information systems and how will it fit into their workflow.
3. Sustainability – How will these programs or interventions be designed with sustainability in mind.
## Deeper dive: Considerations for Effective Information Systems Use

### Technical Capacity

**Central consideration**
What kind of information technology is used for information systems and how do these fit within existing data collection systems?

**Key technological capacities**
- Fit with the daily flow of work and have a clear, **easy to use interface**
- Ensure interoperability of data across facilities and services
- Provide easily accessible information to those who use them
- Can be paper-based or electronic, choice will depend contextual factors such as existing infrastructure, access to cellular connectivity, and user literacy and capacity to use these systems

### User Capacity

**Central consideration**
How can staff be trained to use the technical information systems and how will it fit into their workflow?

**Key user considerations**
- Provider literacy and the capacity to use information systems
- Facility leader/manager capacity and willingness to communicate goals of information systems to staff and provide opportunities for training in these systems
- Provider/manager capacity to utilize appropriate data from these systems to communicate with stakeholders and monitor performance

### Sustainability

**Central consideration**
How will these programs or interventions be designed with sustainability in mind?

**Key cost considerations**
- Capital expenditures for hardware at both the facility and system level
- Ongoing maintenance costs for hardware and updating software
- Costs for data transfer, including bandwidth and SMS reminders
- Staffing for technical assistance and maintenance and training
- Management practices to document, analyze and report data when information systems are not operational
Information Systems Use – How do I get started?

Derive information from **What others have done**, **What to ask** and **How to succeed** to help determine where and how you might begin to plan and enact forms in your country context.
Planning for improvement in your context

The guidance and recommendations described within the Information Systems Use module are not intended to provide a one-size-fits-all solution.

The considerations involved in planning and implementing strategies will depend on your local context.

Sample activities

- **Consider** implementation challenges and approaches in other country contexts

- **Consider how the features of your health system**, such as how decisions get made and the role of the private sector, will impact your improvement plans

- **Identify** key elements that need to be in place to support improvements

- **Use the guiding questions in the Improvement Strategies** to spur thinking about Information Systems Use in your country context and stimulate ideas for improvement

- **Start to develop** an improvement plan
Planning for improvement in your context

While the specific considerations involved in planning and implementing strategies will depend on your context, you might consider…

• **Factors that impact information systems use:**
  • Availability and quality of information systems infrastructure
  • Availability and quality of data, including public health, facility, and patient data
  • Staff capacity to use information systems

• **Key considerations for implementation:**
  • Technical capacity and existing infrastructure
  • Behavioral changes and end-user capacity
  • Population health needs and demands
  • Sustainability and cost
Learn from what others have done

**Information Communication Technology | Brazil**
Impact of the use of information communication technology on women’s health

**Population Health and Implementation Training Partnerships | Multiple countries, Sub-Saharan Africa**
Health information strengthening initiatives
Brazil: At-a-glance context

- Latin America & Caribbean
- Upper-Middle Income
- Portuguese-speaking country
### Brazil: At-a-glance context

<table>
<thead>
<tr>
<th>GDP per capita ($PPP)</th>
<th>Human Development Index</th>
<th>Life expectancy at birth</th>
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<tr>
<td>$15.5K</td>
<td>0.76</td>
<td>75</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Percentage of population living in rural areas</th>
<th>Percentage of population living under $1.90 per day</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>14%</td>
<td>3%</td>
<td>209.3M</td>
</tr>
</tbody>
</table>
Learn from what others have done: Brazil

Background & Approach

- Brazil is one country that has used information and communication technology (ICT) as a means of improving the quality of primary health care.

- One study explored the impact of Brazil’s use of ICT on women’s health based on three components of ICT:
  1. Infrastructure
  2. System Implementation
  3. Information System Use

Impact

The study found an association between quality of care in women’s health and all aspects of information systems use, including the presence of various records and risk stratification protocols.

Areas for Improvement

The study found generally low levels of infrastructure, system implementation, and information systems use in primary care teams across Brazil, underscoring the need to strengthen infrastructure and implementation and use efforts.

Multiple Countries, Sub-Saharan Africa: At-a-glance context

United Republic of Tanzania
East Africa | Low Income
57.3M | 67% Rural

Rwanda
Central Africa | Low Income
12.2M | 83% Rural

Mozambique
Southern Africa | Low Income
29.7M | 65% Rural

Ghana
West Africa | Lower-Middle Income
28.8M | 45% Rural

Zambia
Southern Africa | Lower-Middle Income
17.1M | 57% Rural
Learn from what others have done: PHIT Partnership, Sub-Saharan Africa

Approach

• The Population Health and Implementation Training (PHIT) Partnerships in Ghana, Mozambique, Rwanda, Tanzania, and Zambia all included health information strengthening initiatives
  
  • Mozambique, Ghana, and Tanzania focused on improving quality of existing information systems
  
  • Zambia and Rwanda introduced new information systems and tools
  
  • All countries implemented with consideration of existing infrastructure and specific population needs and demands
Learn from what others have done: Sub-Saharan Africa

Strengths of the Initiative

- **Prioritized** sustainability during implementation plans through robust training and integration of new systems into existing information systems.

- **Emphasized** flexible approaches to design and the ability to refine tools.

- **Provided** performance summaries to aid decision makers in allocation of resources and priorities.
Learn from what others have done: Sub-Saharan Africa

- **Stakeholder engagement, performance measurement and management, and provider competence**: Implementation of new technology should be coupled with stakeholder meetings, data review, and mentoring in the use of data and training for use of new information systems.

- **Interoperable, interconnected information systems**: Health information systems should be designed to be fully integrated with national health information technology.

- **Sufficient infrastructure and technical capacity**: Mobile phone technology can complement EMRs in rural areas but any interventions using mHealth require initial costs in both infrastructure and capacity building including cellular networks and charging ability.
What elements should be in place to support effective improvements in Information Systems Use?

**System**
- Governance & Leadership
  - Primary Health Care Policies
  - Quality Management Infrastructure
  - Social Accountability

- Health Financing
  - Payment Systems
  - Spending on Primary Health Care
  - Financial Coverage

- Adjustment to Population Health Needs
  - Surveillance
  - Priority Setting
  - Innovation & Learning

**Inputs**
- Drugs & Supplies
- Facility Infrastructure
- Information Systems

**Service Delivery**
- Population Health Management
  - Local Priority Setting
  - Community Engagement
  - Empowerment
  - Proactive Population Outreach

- Facility Organization & Management
  - Team-based Care Organization

- Facility Management Capability & Leadership
  - Information Systems Use
    - Performance
  - Measurement & Management

- Access
  - Financial
  - Geographic
  - Timeliness

- Availability of Effective PHC Services
  - Provider Availability
  - Provider Competence
  - Provider Motivation
  - Patient-provider Respect & Trust
  - Safety

- High Quality Primary Health Care
  - First Contact Accessibility
  - Continuity
  - Comprehensiveness
  - Coordination
  - Person-centered

**Outputs**
- Effective Service Coverage
  - Health Promotion
  - Disease Prevention
  - R\textsc{NNCH}
  - Childhood Illness
  - Infectious Disease
  - NCDs & Mental Health
  - Palliative Care

**Outcomes**
- Health Status
- Responsiveness to People
- Equity
- Efficiency
- Resilience of Health Systems
Effective information systems use depends on the presence of robust, interoperable information systems and the infrastructure that supports them. In addition, information systems must be accessible and user-friendly to the health workforce.
What elements should be in place to support effective improvements in Information Systems Use?

It is also dependent on staff capacity to use information systems effectively and efficiently.
Facility managers and/or leaders should ensure that there is a clear vision and purpose for information system use. They should dictate who uses these systems and for what purpose and ensure that everyone receives the necessary training to carry out expected tasks related to information systems.
Questions to ask to help you get started

The specific considerations involved in planning and implementing strategies will depend on your local context.

The questions listed may be a useful starting place to determine how you might begin to plan and enact reforms in your context.

Sample questions

☐ What information systems do facilities currently use to track patient and facility performance data?
Questions to ask to help you get started

The specific considerations involved in planning and implementing strategies will depend on your local context.

The questions listed may be a useful starting place to determine how you might begin to plan and enact reforms in your context.

Sample questions

☐ What information systems do facilities currently use to track patient and facility performance data?

☐ What is the capacity of infrastructure (internet or cellular connectivity, supply of electricity, electronic hardware, etc.) to support information systems use currently and in the future?
Questions to ask to help you get started

The specific considerations involved in planning and implementing strategies will depend on your local context.

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Sample questions

☐ What information systems do facilities currently use to track patient and facility performance data?

☐ What is the capacity of infrastructure (internet or cellular connectivity, supply of electricity, electronic hardware, etc.) to support information systems use currently and in the future?

☐ What sort of training or orientation is needed to ensure that staff can effectively use any new information systems?
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☐ What sort of training or orientation is needed to ensure that staff can effectively use any new information systems?

☐ Are information systems sustainable from a funding and staffing perspective?
The specific considerations involved in planning and implementing strategies will depend on your local context.

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Sample questions

☐ What information systems do facilities currently use to track patient and facility performance data?

☐ What is the capacity of infrastructure (internet or cellular connectivity, supply of electricity, electronic hardware, etc.) to support information systems use currently and in the future?

☐ What sort of training or orientation is needed to ensure that staff can effectively use any new information systems?

☐ Are information systems sustainable from a funding and staffing perspective?

☐ How will data feedback for quality improvement be integrated?
Recap: Information Systems Use

Information Systems Use includes the collection, reporting, and use of data across all levels of the PHC system.

Effective use of information systems includes...

- Public health data
- Facility data
- Patient data

- Routine collection of data
- Interpretation of data
- Use of data for priority setting and performance monitoring
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...and requires...

- Sufficient staff capacity
- ...to capture, report, and review data using existing information system infrastructure

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