

Assignment 3

1. Primary Care Provider and Multi-Country NGO

a) Primary Care Provider:

Introduction

Primary care providers encounter persistent challenges with data quality in their operational systems, stemming from an interplay of technical limitations, procedural constraints, and resource restrictions (Cohen et al., 2018). These obstacles significantly affect the accuracy, consistency, and completeness of patient records, ultimately impacting care delivery, clinical decisions, and quality improvement initiatives. We have to examine the fundamental causes of data quality concerns focusing specifically on completeness, validity, reliability, and accuracy to develop a comprehensive understanding of potential solutions.

Completeness

A primary challenge facing data quality in primary care provider settings is the issue of incomplete records. This typically occurs when patient information capture falls short due to high clinical volumes and workflow pressures. Primary care providers often must choose between efficiency and thorough documentation, resulting in missing vital information such as follow-up documentation, patient demographics, or key clinical indicators (Cohen et al., 2018). Additionally, many systems used by primary care providers feature limited flexibility, offering only basic standardized reporting capabilities that fail to capture the full scope of data needed for quality evaluations. This leads to primary care providers working with incomplete information that offers an insufficient view of patient health status.

To tackle these issues, primary care providers can implement assessment tools such as the WHO data quality report card and DHIS-2's completeness checks to evaluate and track data gaps. Incorporating these solutions into existing workflows helps minimize incomplete records, ensuring critical patient information remains accessible for both clinical practice and reporting requirements. Evidence shows that implementing practical strategies to enhance data quality can deliver significant advantages in primary care provider settings (Dungey et al., 2016).

Validity

Data validity represents another crucial dimension, ensuring that system data accurately mirrors real-world patient conditions. Validity issues typically emerge from inconsistent data entry methods, particularly in primary care provider behavioral health services, where unstructured fields and free-text entries predominate. Such variations hinder effective record comparisons and may generate data inconsistent with established clinical protocols (Beehler et al., 2017).

Primary care providers can establish clear data validation protocols, such as those offered by DHIS-2's validation rules, to ensure data entries conform to clinical standards and remain within

expected parameters. Implementing these protocols promotes consistency across systems, building a reliable foundation for patient care and quality measurement.

Reliability

Reliability plays an essential role in maintaining data consistency across time periods and various sources. However, primary care providers often face challenges when system data fails to align with other records, such as paper documentation or external databases. This issue becomes more pronounced when multiple staff members perform data entry without standardized procedures, creating inconsistencies that impact care continuity (Bonfim et al., 2023). For example, when staff enter patient information using varying formats, the resulting discrepancies can reduce overall data reliability.

Primary care providers can employ tools like DHIS-2's data integrity checks and WHO's report card systems to compare digital records with external data sources, identifying and resolving discrepancies. This verification process strengthens data consistency and enhances reliability, ultimately contributing to improved patient outcomes.

Accuracy

Accurate data serves as a cornerstone for effective clinical decision-making and quality improvement in primary care provider settings. Accuracy often suffers from inadequate validation mechanisms within provider systems that fail to consistently identify outliers or unusual values. For instance, when systems lack the capability to detect improbable data such as impossible age entries or abnormal clinical measurements errors may persist undetected, compromising clinical analysis quality (Cohen et al., 2018).

Furthermore, high patient volumes in primary care provider settings frequently discourage detailed data entry, leading to omissions and inaccuracies in patient documentation. MEASURE quality assessment tools offer methods for detecting anomalies and inconsistencies, helping ensure system data accurately represents patient conditions and supports informed clinical decisions. These validation tools enable primary care providers to develop more accurate datasets, enhancing their quality improvement initiatives.

Resource Constraints and Training

Resource limitations and insufficient training compound data quality issues in primary care provider settings by restricting access to advanced management tools and comprehensive staff education. Most primary care providers operate under strict financial constraints, preventing investment in sophisticated data management solutions or extensive training programs. This often results in staff developing inconsistent data entry practices, increasing error probability and compromising data reliability (Cohen et al., 2018).

To address these challenges, primary care providers should consider implementing DHIS-2's validation protocols and conducting regular data management training sessions. Through consistent education efforts, primary care provider staff can better maintain data accuracy and

consistency, enabling more effective use of system data for clinical and quality improvement purposes.

Conclusion

Data quality challenges in primary care provider systems stem from multiple sources, including system limitations, varied data entry practices, complex data handling processes, integration difficulties, and resource constraints. A comprehensive solution encompassing improved systems, standardized entry protocols, better integration capabilities, and ongoing staff training can help primary care providers enhance data quality across all key dimensions: completeness, validity, reliability, and accuracy. Through improved data quality, primary care providers can strengthen their clinical decision-making processes and deliver enhanced patient care outcomes.

b) Multi-Country NGO:

According to Masefield et al. (2020), NGO data quality faces multiple significant challenges that impact its usefulness in health policy and systems research. The primary issues stem from inconsistent record-keeping systems across different NGOs and health systems, where organizations employ varying methods of data collection that don't capture uniform information (Scicluna, 2023). This inconsistency is further complicated by incomplete records and difficulties in integrating data across different services. Most NGO data is collected primarily for practical service delivery rather than research purposes, creating gaps in research-critical elements such as adequate context descriptions, control groups, and detailed intervention information (DQOps, 2024). The challenges become more pronounced in difficult geographical areas or during humanitarian crises, where data collection might be limited, incomplete, or inaccurate. These limitations often arise from NGOs' understandable prioritization of service delivery and population treatment over comprehensive data collection for research purposes.

In multi-national NGOs, data quality challenges are amplified by each region's distinct social, regulatory, and infrastructural contexts, leading to inconsistent data standards like ICD-10, CPT, and SNOMED CT, which complicate interoperability and the consolidation of accurate datasets. Technological limitations in low-resource areas further result in incomplete or delayed data, compromising reliability and completeness. Additionally, language and cultural differences can lead to misinterpretations, affecting data validity. NGOs must also navigate various national regulations, such as GDPR or HIPAA, which enforce differing data privacy standards that hinder cross-border data governance and consistency. Addressing these issues calls for robust governance, adaptable technology, and regional collaboration to meet diverse regional needs and ensure the quality of data for global health research and policy-making.

2. Data Validation Exercise

1.)

G4 Age Group: Under 5 years

- GBV victims referred for care for higher level health facility should be < (GBV victims with symptoms of sexual violence (new cases) + GBV victims with symptoms of physical violence (new cases)).
- GBV victim deaths should be < (GBV victims with symptoms of sexual violence (new cases) + GBV victims with symptoms of physical violence (new cases))
- GBV victims referred to this facility by police should be < (GBV victims with symptoms of sexual violence (new cases) + GBV victims with symptoms of physical violence (new cases)).
- GBV victims referred to this facility by community healthcare worker should be < (GBV victims with symptoms of sexual violence (new cases) + GBV victims with symptoms of physical violence (new cases)).

G4 Age group: 5 to 9 years:

- GBV victims referred for care for higher level health facility should be <= (GBV victims referred to this facility by police + GBV victims referred to this facility by healthcare workers)
- GBV victims with irreversible disabilities due to GBV should be <= (GBV victims with symptoms of sexual violence (new cases) + GBV victims with symptoms of physical violence (new cases))
- GBV victims with symptoms of sexual violence (new cases) should be < (GBV victims referred to for care for higher level health facility)
- GBV victims with symptoms of physical violence (new cases) should be < (GBV victims referred to for care for higher level health facility)

G4 Age Group: 10-18 years

- GBV victims HIV+ve sero-conversion 3 months after exposure should be <= (GBV victims with symptoms of sexual violence (new cases) – GBV victims received post exposure HIV prophylaxis within 48 hours)
- GBV victims received post exposure HIV prophylaxis within 48 hours should be < GBV victims of sexual violence.
- GBV victims pregnant 4 weeks after exposure should be <= (GBV victims with symptoms of sexual violence (new cases) – GBV victims received emergency contraception within 72 hours and Gender is Female)
- GBV victims received emergency contraception within 72 hours should be < GBV victims with symptoms of sexual violence (new cases) AND Gender Female

G4 Age group: 19 years and above

- GBV victims pregnant 4 weeks after exposure < GBV victims with symptoms of sexual violence (new cases) and Gender is Female
- GBV victims pregnant 4 weeks after exposure < GBV victims with symptoms of sexual violence (new cases) AND age group and Gender Female

- GBV victims HIV+ve sero-conversion 3 months after exposure should be < GBV victims with symptoms of sexual violence (new cases)
- ((GBV victims with symptoms of sexual violence (new cases) + GBV victims with symptoms of physical violence (new cases)) should be >= GBV victims referred to care for higher level health facility

2.)

G4 Age Group: Under 5 years

- GBV victims referred for care for higher level health facility should be < (GBV victims with symptoms of sexual violence (new cases) + GBV victims with symptoms of physical violence (new cases))
- GBV victims with symptoms of physical violence (new cases) should be < (GBV victims referred to for care for higher level health facility)

G4 Age Group: Under 5-9 years

- GBV victims with symptoms of physical violence (new cases) should be < (GBV victims referred to for care for higher level health facility)

G4 Age Group: 10-18 years

- GBV victims with symptoms of sexual violence (new cases) should be < (GBV victims referred to for care for higher level health facility)

G4 Age Group: 19 years and above

- ((GBV victims with symptoms of sexual violence (new cases) + GBV victims with symptoms of physical violence (new cases)) should be >= GBV victims referred to care for higher level health facility

3.)

Rule Name:

G4 GBV HIV Prophylaxis ≤ Sexual Violence Cases (Female Only)

Condition:

GBV victims received post-exposure HIV prophylaxis within 48 hours < GBV victims with symptoms of sexual violence (new cases).

4.)

1. G4 GBV <5 Years Deaths

Rule - GBV victim deaths > 0 AND 'MALE' AND 'Under 5 years' = True

Message: A GBV victim death has been reported for males in the age group <5 years.

Rule - GBV victim deaths > 0 AND 'FEMALE' AND 'Under 5 years' = True

Message: A GBV victim death has been reported for females in the age group <5 years.

2. G4 GBV 5-9 years Deaths

Rule - GBV victim deaths > 0 AND 'MALE' AND '5-9 years' = True

Message: A GBV victim death has been reported for males in the age group 5-9 years.

Rule - GBV victim deaths > 0 AND 'FEMALE' AND '5-9 years' = True

Message: A GBV victim death has been reported for females in the age group '5-9 years'.

3. G4 GBV 10-18 years Deaths

Rule - GBV victim deaths > 0 AND 'MALE' AND '10-18 years' = True

Message: A GBV victim death has been reported for males in the age group 10-18 years.

Rule - GBV victim deaths > 0 AND 'FEMALE' AND '10-18 years' = True

Message: A GBV victim death has been reported for females in the age group '10-18 years'.

4. G4 GBV 19 years and above Deaths

Rule - GBV victim deaths > 0 AND 'MALE' AND '19 years and above' = True

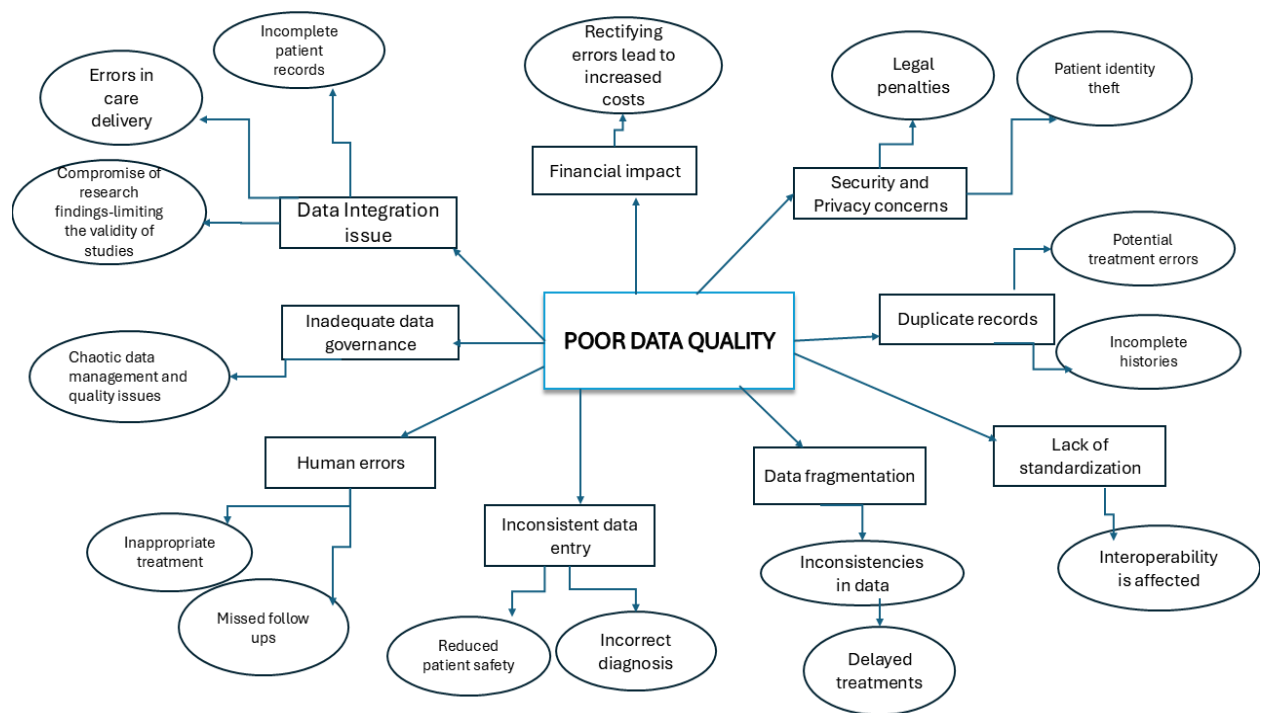
Message: A GBV victim death has been reported for males in the age group 19 years and above.

Rule - GBV victim deaths > 0 AND 'FEMALE' AND '19 years and above' = True

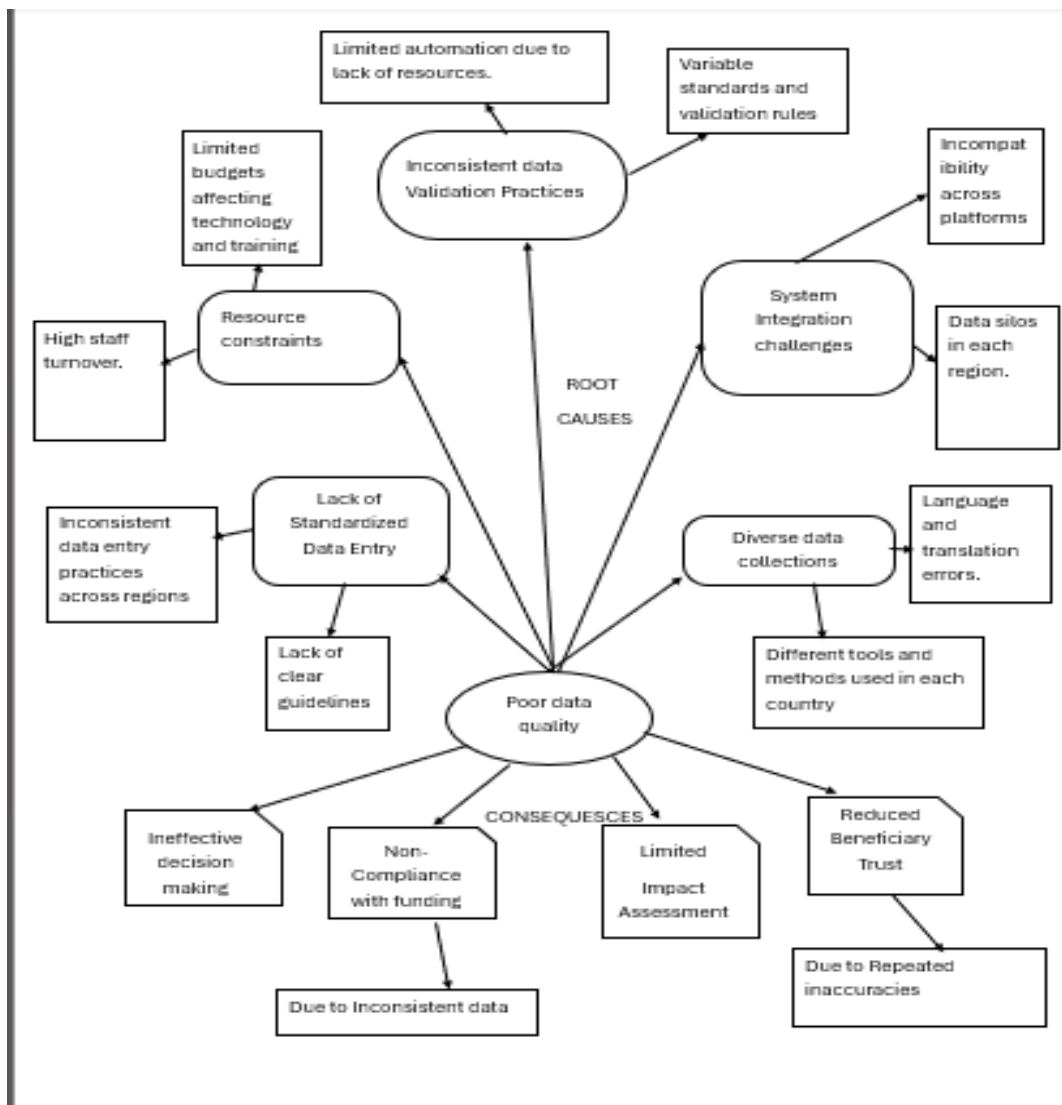
Message: A GBV victim death has been reported for females in the age group '19 years and above'.

Extra Credit:

Primary Healthcare Provider:



Multi-Country NGO:



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