

Addressing Data Quality



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Introduction

Improving data quality within Prison Healthcare is paramount and plays an integral role in ensuring the well-being of patients and the efficacy of medical services. This case study explores and addresses the issue of data quality within the prison healthcare system, and SONAR's aim is to improve the accuracy, completeness, and timeliness of healthcare data to enhance the quality of care provided to incarcerated individuals. Nonetheless, achieving and maintaining high-quality standards poses a significant challenge due to the numerous ways errors can infiltrate a system, coupled with the complexities of systematically rectifying them. Challenges related to data quality generally fall into two main categories. The first category pertains to inconsistencies among systems, encompassing issues like format, syntax, and semantic discrepancies. The second category involves inconsistencies with the real world, made greater by missing, outdated, and inaccurate data values, as well as outliers¹.

SONAR Data Portal

Ensuring that patients within the justice system receive appropriate medical attention is not only a legal obligation but also a moral responsibility. However, the prison healthcare system faces several data quality challenges that could potentially hinder the effective delivery of care:

- i. Data fragmentation: Healthcare data is being collated and stored in disparate systems, making it difficult to access comprehensive patient records. Examples being SystmOne primary care, SMS potentially being paper recorded and NDTMS being another software solution.
- ii. Manual Data Entry: Much of the data being recorded manually, leading to errors, duplication, and inconsistency.
- iii. Timeliness Issues: Delays in data entry and updates resulting in outdated patient records, making it challenging to provide timely care.

Identifying the Problem

To address the data quality issues, a multidisciplinary team was formed comprising of healthcare professionals, IT experts and data analysts. The team conducted a thorough analysis to identify the root cause of the problem.

- i. Data Audit: A comprehensive audit of the existing healthcare data was conducted to assess its accuracy and completeness.
- ii. Stakeholder Interviews: Interviews with healthcare providers and administrators were conducted to understand their experiences and concerns related to data quality.
- iii. Process Mapping: The team mapped out the data collection and entry process to identify bottlenecks and areas prone to errors.

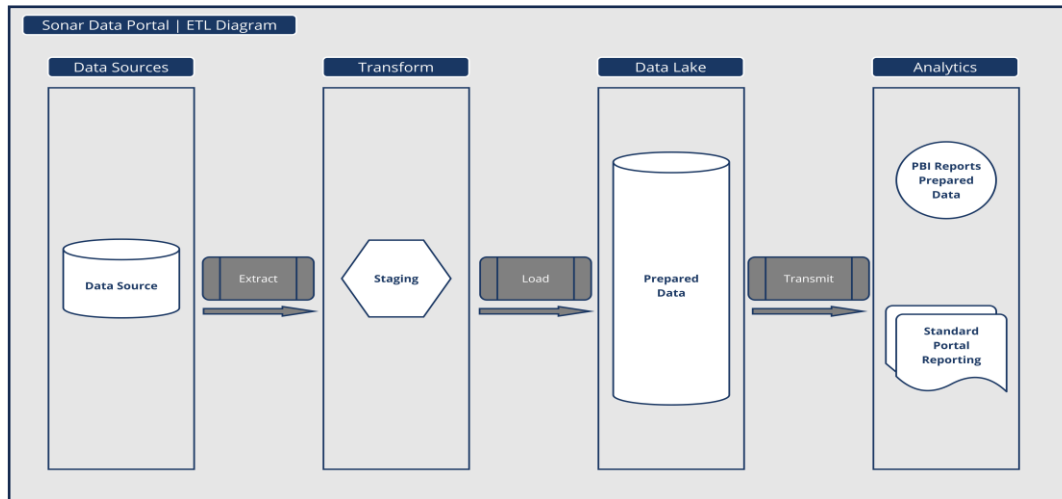
Implementing Solutions

Based on the findings from the analysis, a series of solutions were implemented to improve data quality within prison healthcare.

¹ Improving Data Quality in Practice: A Case Study in the Italian Public Administration, March 2023, Distributed and Parallel Databases 13(2):135-160.

Our solution is to implement a Cloud Based Platform known as the SONAR Data Portal. The objective of SONAR is to provide the end user with bespoke information relating to the quality of data in their SystemOne unit and to highlight the any recommendations for change to ensure consistent accuracy and adherence to maintaining the accurate levels of data quality.

The aim is for SONAR to collate and analyse the data sets on a day-to-day basis to highlight the corrections required and the success of previous recommendations.



The pre-defined reporting to provide the end user with the relevant information required for rectification. Furthermore, we have successfully utilised data visualisation, providing the user with visualised results of their data quality metrics. Trending their performance allows the user to successfully highlight and identify the periods of discrepancy.

Rectifying Data Fragmentation

The implementation of the SMS Toolkit was a strategic move aimed at addressing several critical issues and enhancing the day-to-day operations of the healthcare team while simultaneously improving the overall patient experience. These objectives encompassed reducing the reliance on paper records and minimising redundant data entry into the prison system. The toolkit also facilitated seamless information sharing within the healthcare department, optimising case load management for better workforce planning and clinical supervision.

Furthermore, it aimed to minimise the time wasted on searching for data within the healthcare team due to the lack of access to a centralised system, thereby streamlining processes and reducing duplication of information captured, such as Primary Care recording BBV status and the SMS team's data collection efforts. This not only increased operational efficiency but also improved the client experience by eliminating the need for redundant data requests.

The toolkit's implementation also introduced referral functionality within the healthcare system, significantly enhancing response times and promoting collaborative efforts with Mental Health services, particularly for clients with dual diagnoses. Moreover, it contributed

to the enhancement of data quality by standardising the use of national readcodes and NDTMS options across all forms, questionnaires, and clinical templates.

In addition, the SMS Toolkit played a pivotal role in expediting monthly reporting processes by leveraging prebuilt reports, thereby reducing time frames, and further streamlining operations within the healthcare team.

Opening Position

The situation with the existing processes before the changes to the SMS Toolkit was characterised by a combination of manual and fragmented procedures. Patient interactions at the reception by Primary Care healthcare were often followed by the SMS Team manually checking NOMIS for reception records from the preceding day. Subsequently, the SMS Team would contact healthcare to ascertain if any patients required SMS input.

This interaction process involved a manual approach, with calls or emails sent to healthcare to inquire about patients' immediate SMS concerns. For all patients seen, a contact was scheduled, and patients were subsequently contacted on the wing. Paperwork, including questions that had already been answered during reception screening, was completed. In the event that patients were accepted into the services, a case file was created, and paper files were added to the Record library.

Furthermore, as healthcare had no direct access to the SMS records, there was a verbal relay of information to the Healthcare team during daily briefings. Additionally, reports were manually compiled in Excel on a monthly and quarterly basis, contributing to the overall reliance on time-consuming and paper-based processes. These procedures were less efficient and prone to potential errors and duplications.

Rectification

In response to the changes implemented, the workflow for the SMS Toolkit and patient management has undergone significant improvements. The process now reflects a more organised and efficient approach, incorporating automation and enhanced communication.

The SMS Team has transitioned to a more proactive stance, utilising daily reports summarising the individuals seen the previous day, including those seen over the weekend. Records are systematically checked for any SMS-related concerns. SMS referrals are promptly assessed, and if required, they are added to the Pending Triage Assessment caseload, ensuring a swift response to patient needs.

Appointments are systematically scheduled for patients, and an essential step now involves obtaining the client's consent for data sharing, promoting transparency and compliance. For cases where the client is not suitable or does not wish to proceed with services, the referral process is swiftly concluded, avoiding unnecessary delays.

Patients accepted into the services have their referrals integrated into the Pending Allocation Case Load, where they are systematically assigned a dedicated Case Worker. All contacts and records are comprehensively managed within the SystmOne platform, fostering streamlined information management and retrieval.

Importantly, healthcare and Mental Health teams now have continuous access to shared patient information, eliminating the need for manual requests and promoting real-time collaboration. Moreover, monthly reports are automatically generated and forwarded as a Batch Report to the team admin/reporting lead, enhancing monitoring and reporting capabilities. These changes have greatly improved the efficiency and effectiveness of the SMS Toolkit and patient management processes.

Conclusion

SONAR CMS has demonstrated a highly successful approach to data quality rectification, through meticulous planning, strategic implementation, and a commitment to continuous improvement.

SONAR recognises the pivotal role that data quality plays in the success of their operations. We have invested in robust data governance policies and procedures, fostering a culture of data accountability and responsibility across the organisation and our partners. This approach ensures that data quality is a shared objective, involving all relevant stakeholders.

We have leveraged state-of-the-art data profiling and cleansing tools, enabling us to identify and rectify data inaccuracies, inconsistencies, and redundancies efficiently. Additionally, we have established clear data quality metrics and key performance indicators (KPIs) to monitor and evaluate progress continually. This data-driven approach allows us to make informed decisions and prioritise data quality initiatives effectively.

Moreover, the implementation of automated data validation and verification processes streamlines data input and reduced the potential for errors at the source. The proactive approach to data quality rectification will significantly reduce operational costs associated with data-related issues and enhanced overall productivity.

SONAR's commitment to data quality extends beyond the initial rectification efforts. We have established a robust data stewardship program, ensuring ongoing data quality monitoring and maintenance. This proactive approach safeguards against data degradation and maintains the high standards of data quality achieved.

Furthermore, SONAR's success is underscored by our ability to align data quality objectives with our overarching business goals. The improved data quality not only enhances operational efficiency but also enables better decision-making, improved care experiences, and regulatory compliance.

In summary, SONAR's successful approach to data quality rectification serves as a compelling example of how organisations can harness the power of data governance, automation, and ongoing monitoring to achieve and sustain high levels of data quality. Their commitment to data quality has not only mitigated risks associated with poor data but has also positioned them as a data-driven organisation ready to thrive in an increasingly data-centric business landscape.