

## CHAMPS in Practice – Data to Action

### Enhancing clinical data completeness and integrity for improved patient care: CHAMPS Experience from a tertiary level health facility in Bangladesh

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### Summary

Suboptimal clinical record keeping presents a problem in managing ill children throughout the continuum of care for both acute and chronic conditions. For children this is exacerbated by the fact that they are not able to well articulate any previous health system encounters and the outcomes thereof. To address this problem, the CHAMPS team at Bangabandhu Sheikh Mujib Medical College Hospital (BSMMCH), Faridpur, Bangladesh in collaboration with hospital management and staff, introduced a structured clinical form in the Special Care Newborn Unit (SCANU). The aim was to enhance completeness and quality of clinical data for better patient care of newborns. Gaps in documentation of clinical information (comprehensive and well-documented clinical and laboratory information) were identified as a contributor to preventable causes of deaths in newborns and children under 5 years of age. This intervention was developed as a data-to-action initiative, working closely with clinicians involved in newborn care with a four-phase approach – development, piloting, revision, and finalization. The finalized form was introduced for all admitted neonates at the SCANU of BSMMCH starting from September 4, 2023. Preliminary assessments indicate improved completeness of clinical data in key areas such as symptoms during hospital admission, birth history, and clinical examination findings. However, capturing information from laboratory and other investigations remains a challenge.

### Background and context

Neonatal mortality remains a significant public health concern in low- and middle-income countries (LMICs), including Bangladesh<sup>1,2,3</sup>. Ensuring high-quality neonatal care is crucial to combat this public health challenge<sup>3,4</sup>. Comprehensive and accurate clinical documentation plays a vital role in providing optimal care, facilitating research, and designing public health interventions<sup>5</sup>. The Child Health and Mortality Prevention Surveillance (CHAMPS) aims to identify

the precise causes of stillbirths and under-five deaths in Sub-Saharan Africa and South Asia by minimally invasive tissue sampling (MITS) report, clinical data and verbal autopsy. The Bangabandhu Sheikh Mujib Medical College Hospital (BSMMCH) is a public tertiary-level referral hospital and the largest CHAMPS surveillance facility in Bangladesh. During the process of cause of death determination that is done by an expert panel consisting of obstetricians, neonatologists, epidemiologists, virologists, and other relevant public health specialists, inadequate clinical data was a critical barrier to identifying the precise cause of death and a contributor to inadequate patient care. Thus, the Head of the Department of Pediatrics at BSMMCH emphasized the completeness of clinical data for optimal patient care.

The lack of complete and comprehensive data posed several challenges:

- Incomplete or inconsistent information limited the ability of healthcare providers to make treatment decisions, potentially compromising quality of care and patient safety.
- MITS laboratory test reports without comprehensive clinical data limit the ability to determine the precise cause of death identification.

CHAMPS Bangladesh planned to introduce a structured clinical form with the following aims:

1. Ensure quality of care
2. Help physician collect all essential information within a short time
3. Keep a record of all laboratory investigations for future use, both for clinical and research purposes
  - a. Implement a comprehensive standardized treatment form to ensure consistency and completeness of information.
  - b. Enhance clinical documentation practices among healthcare providers.
  - c. Support informed treatment decisions by providing readily available and accurate patient data.
4. Acquire comprehensive clinical data:
  - a. Evaluate the form's impact on physician practices, ensuring its usability and effectiveness for optimal implementation.
  - b. Gather comprehensive data to support future research studies and public health initiatives.

## Intervention

To address the identified challenges and improve clinical documentation practices within the SCANU, an intervention was implemented by following multiple phases:

1. Development phase: Professors of BSMMCH and CHAMPS physicians developed a structured clinical form tailored to the specific needs of the SCANU. This form incorporated essential information for comprehensive neonatal care, including:
  - Patient demographics and contact information
  - Presenting complaints with duration
  - Detailed birth and maternal history
  - Findings from physical examinations
  - Laboratory investigation results
  - Provisional diagnosis
  - Treatment and medications administered
  - Event sheet to track critical events such as hypothermia, hypoglycemia, and apnea
  - Specific diagnosis during discharge
2. Piloting phase: The initial draft of the form was piloted within the SCANU to assess its usability, identify potential challenges, and gather feedback from healthcare providers (**Figure 1**). The pilot phase was performed by the CHAMPS physicians, which started on April 1st, 2023 and allowed for fine-tuning of the form to ensure its practicality and effectiveness considering the practical situation.
3. Revision phase: The CHAMPS physician presented their findings of the pilot phase to the senior doctors of the Department of Pediatrics of BSMMCH, including the Head of the Department. After getting feedback, it was carefully reviewed and incorporated into revisions of the form. This iterative process ensured that the final version of the form was comprehensive, user-friendly, and aligned with the requirements of both clinicians and CHAMPS expert panels.
4. Implementation phase: Following the revisions, the standardized treatment form was officially introduced on September 4th, 2023, for use by all doctors within the SCANU (**Figure 1**). Training sessions were conducted to familiarize healthcare providers with the form's structure and ensure its consistent and accurate completion.



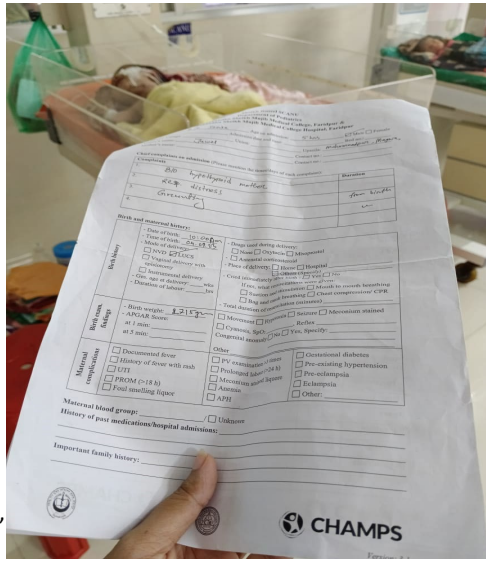
**Figure 1:** CHAMPS team is working with the head of the department of pediatrics (Left) ; CHAMPS team member is demonstrating the form to the higher authorities (Right)

## Impact of interventions

A random 10% clinical forms from each month were investigated to find out the completeness and availability of data in the clinical forms. From October 2023 to February 2024, a total of 100 forms were evaluated. For major symptoms, birth history, and examination findings on admission, data were checked whether complete, partially complete, or not written at all. Whether information was available or not for maternal complications and past medical history was also checked. Additionally, the availability of the investigation reports and diagnosis on admission and discharge were noted.

Preliminary assessments of the form's impact have demonstrated several positive outcomes:

1. **Improved documentation completeness:** Analysis of 100 forms revealed significant improvements in documentation completeness across key areas. Information on presenting complaints, birth history, and examination findings was more consistently and comprehensively recorded compared to the pre-intervention period.
2. **Enhanced data availability:** The structured form facilitated the availability of essential data enabling timely and accurate diagnosis and treatment for newborns thus reducing newborn mortality. In addition, for those children that died in hospital, this data increased the ability to identify the cause of death and recommend mortality prevention interventions. Information on maternal complications and past medical history of the neonates was readily available in most of the cases (82% and 86%, respectively), enabling a better understanding of potential risk factors and contributing factors to neonatal health outcomes.
3. **Improved follow-up documentation:** While the documentation of follow-up examination findings was complete in 23% cases and partially complete in 76% cases at the time of assessment, initial trends indicated improvements in completeness and consistency over the months.



**Experiences of the physicians who are using the form**

A small focus group discussion was conducted with intern doctors at BSMMCH, who are primarily responsible for patient examinations, history taking and form completion. They reported that the structured form helps them remember essential examination points and inquiries during history taking. They also said that the form's layout is user-friendly, which allows for quick completion.

Other trainee doctors and professors within the Department of Pediatrics highlighted the benefits of having crucial information consolidated on a single structured sheet. They said that the readily accessible overview is helping them for faster decision-making regarding management plans of the neonates. However, they also acknowledged challenges related to the high patient volume and limited staffing within the SCANU, which sometimes hampers consistent form completion during peak hours, particularly during morning shifts with high patient turnover.



**The first dissemination seminar with the departmental doctors after piloting of the form**

## Lessons learned

- It is feasible to introduce structured clinical form in a very busy tertiary level hospital. However, the active involvement of the head of the department and senior physician is essential to make it successful.
- Initial piloting by the CHAMPS physicians gave the hospital physicians motivation and confidence.
- The pilot phase and feedback from doctors were essential for refining the form and ensuring its practicality.
- Ongoing assessment of the form's utilization and impact will guide further improvements.

## Recommendations

1. Continued monitoring and evaluation: Ensure periodic assessment of data completeness, treatment decisions, and patient outcomes to measure the long-term impact of the form.
2. Regular sharing of the assessment finding with the departmental senior physicians to identify the potential areas of improvement.
3. Integration with electronic systems: Exploring scopes for transitioning to electronic forms for improved data management and accessibility.
4. Expansion to other units: Exploring the opportunities to implement similar structured forms in other units of the Department of Pediatrics and other departments.
5. Sharing experiences: Disseminate findings to the big forum of the hospital to inform the best practices and encourage the wider adoption of comprehensive clinical documentation.
6. The next step is to assess the impact of this form to obtain comprehensive clinical data in DeCoDe results.

## References

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