Conceptualization of Concrete Tracking in Quality Traceability System

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Abstract: Purpose — When problems arise with sterilization packages, the quality traceability system serves as one of the means to trace the clues. However, in cases of disputes involving clinical departments and missing instruments, it is often difficult to provide strong evidence. Methods — By connecting cameras with the traceability system, it enables concrete tracking from the retrieval to the issuance phase during barcode traceability. Results—The disputes with clinical departments have significantly decreased, and the rate of missing items in instrument packages has reduced. Conclusion — The concrete tracking in the traceability system has greatly reduced disputes with clinical departments over missing items in instrument packages, maintaining the reputation of the Disinfection Supply Center and boosting the motivation of its staff.

***Keywords*:** traceability system, missing items, concrete tracking, conceptualization

1. Introduction

The Disinfection Supply Center is responsible for the recovery, cleaning, sterilization, training, packaging, sterilization, and distribution of reusable instruments, tools, and utensils for all departments of the hospital. However, in many hospitals, this department is not given much attention. When clinical departments receive sterile packages from the Disinfection Supply Center and find missing items in the instrument packages, they often assume that the Disinfection Supply Center has not done a proper inspection and packaging job, without asking the using physicians or searching within the department. Such situations happen repeatedly, making the recovery work of the Disinfection Supply Center more challenging, lowering its reputation within the hospital, and demotivating its staff. Therefore, utilizing the traceability of the traceability system to provide strong evidence for the Disinfection Supply Center and clinical departments in cases of disputes over missing items in instrument packages is of great significance in maintaining the center's reputation and boosting the motivation of its staff.

2. The Necessity of Concrete Tracking in Traceability System

With the development of new technologies and services in clinical departments, the variety of instruments that the Disinfection Supply Center needs to handle has increased. This has also led to increased complexity for the staff when assembling instrument packages. While the previous traceability system could track information at various key points, when missing items occur in instrument packages, the retroactive results only lead to identifying the responsible individuals. Even with surveillance in the Disinfection Supply Center, it can only access surveillance footage based on the packaging time indicated in the traceability information and then inspect each item during that time period. The workload for the Disinfection Supply Center is substantial, and the responsible individuals may no longer recall whether there were missing items in the instrument package. Surveillance inspections are time-consuming and labor-intensive. To avoid delaying work progress, the Disinfection Supply Center often leaves the matter unresolved, and after replenishing the missing instruments for clinical departments, they attribute the error to the assembly personnel. Such incidents occur without evidence, and they not only lower the Disinfection Supply Center's reputation in clinical departments but also, more importantly, severely affect the motivation of the staff.

3. Development of Concrete Tracking in the Traceability System

The following are the components of concrete tracking in the traceability system.

3.1 Retrieval Section

The retrieval section includes a retrieval counter, a barcode scanner, and a high-definition camera. When the cleaning staff retrieve items, they place the items to be retrieved within the retrieval area marked on the retrieval counter. One meter above the retrieval area is a high-definition camera. When the cleaning staff identify the items on the retrieval counter, the camera automatically starts recording video footage. The recording continues until the instrument package is fully counted, and the barcode on the instrument package (with a fixed and unique barcode number) is scanned, indicating the end of

retrieval. The traceability system automatically uploads the traceability information (video) of the instrument package's retrieval, which is saved for future reference.

3.2 Packaging Section

The packaging section includes a packaging counter, a weighing scale, and a high-definition camera. When the packaging personnel assemble items, they place the items to be assembled within the packaging area marked on the packaging counter. One meter above the packaging area is a high-definition camera. When personnel identify the items on the packaging counter, the camera automatically starts recording video footage. The recording continues until the instrument package assembly is complete, and the instrument package barcode is printed to mark the end of packaging. After the recording ends, the packaging counter automatically begins weighing. The weight is compared to the previous weight associated with the barcode of the instrument package. The warning threshold is set based on the lightest and smallest instrument, such as a knife handle weighing 50g. If the comparison value is ≤50g, the packaging counter sends an alert, and the assembly personnel need to double-check the number of instruments in the instrument package. All data (videos) are uploaded to the corresponding traceability barcode and saved for future reference.

4. Significance of the Development of Concrete Tracking in the Traceability System

4.1 Enhancing Traceability System Information for Retrieval and Assembly Nodes, Increasing Video Data for Retroactive Tracking

Previously, the traceability system was only connected to cleaning, disinfection, and sterilization equipment, and it could only retrieve relevant information related to the equipment. However, it is the often overlooked retrieval and packaging aspects that are common points of contention between the Disinfection Supply Center and clinical departments. In the event of a dispute, the Disinfection Supply Center only needs to know the barcode of the instrument package to find all visual data related to the retrieval and packaging of that instrument package in the traceability information.

4.2 Improving Retrieval and Assembly Processes, Achieving Real-Time Updates to the Instrument Map

With the continuous advancement of medical technology and the widespread use of various interventional, minimally invasive, transplant, or replacement surgeries, complex instruments composed of different materials that incorporate optical, electronic, and other technologies are emerging. This poses a significant challenge to the precision-oriented management model of the Disinfection Supply Center and, in turn, increases the difficulty of retrieval and assembly. However, as long as new instruments are initially retrieved, assembled, and recorded with image data in the Disinfection Supply Center, this data can be accessed during retrieval and assembly, making the work of the staff more convenient. It also enables packaging personnel to quickly locate the contents of the instrument package, reducing the time required for unpacking and verifying instrument packages. This achieves efficient work that can be viewed instantly, and the timely transfer of information results in real-time updates to the instrument map.

4.3 Constraining Personnel to Follow Operational Standards, Ensuring Quality in Retrieval and Assembly, Enhancing Departmental Reputation

The recording of high-definition cameras not only subtly constrains the behavior of personnel but also prevents randomness during operations, ensuring the quality of retrieval and assembly and assigning responsibility clearly. The retrieval of image data clarifies the division of responsibility. In the event of disputes with clinical departments, the retrieval of image data allows for the clear division of responsibility, which helps maintain the department's reputation and enhances the motivation of the staff. Access to image data can also be used as training material for new instruments in departments, significantly saving training time and improving training effectiveness.

5. Conclusion

In summary, only through technological informatization and operational intelligence can we keep pace with the development of the times. Designing and developing an informationized quality traceability system and establishing efficient and comprehensive information systems will become an inevitable trend in the development of CSSD (Central Sterile Supply Department) in hospitals at all levels. In the rapidly evolving landscape of medical technology today, our Disinfection Supply Center can only ensure the safety of hospitals and patients by continuously developing various new intelligent products and integrating them with the quality management system, keeping up with the pace of technological

advancement.

References

[1] Kang J, Zhang Q, Yang H. Practice and Effect Evaluation of Informationized Quality Traceability Management in Hospital Disinfection Supply Centers. Chinese Journal of Infection Control, 2021, 20(3): 222-226.

[2] Qian L, Li K, Zhang Q. Current Status of Implementing Informationized Quality Traceability in Hospital Disinfection Supply Centers. Chinese Journal of Nursing, 2020, 5(1): 123-127.

[3] Lin X, Li L, Liang Y, Lai Y, Jiang Z, Fu M. Impact of Information Systems on the Quality Management of Precise Instruments in Disinfection Supply Centers. Chinese Medical Equipment, 2023, 20(2): 146-150.

[4] Li C, Liu M, Li X, Zhang X, Jiang B, Peng J. Research on Informationized Quality Traceability System in Disinfection Supply Centers. Medical Equipment, 2023, 36(5): 160-164.

[5] Zheng Y, Lin Y, Gong S, Liu J, Zhu Y, Chen L, Wu R. Application Effect of ISBAR Structured Communication Model in Optimizing Shift Handover in Disinfection Supply Centers. Chinese Journal of Traditional Chinese and Western Nursing, 2023, 9(3): 154-156.

[6] Chen R, Ma S. Practices and Discussions on Establishing Effective Communication between Disinfection Supply Centers and Clinical Departments. Hospital Management Forum, 2022, 39(7): 80-82.

[7] Zhang P. Solutions for Common Problems and Communication Techniques between Disinfection Supply Centers and Operating Rooms. Heilongjiang Journal of Traditional Chinese Medicine, 2021, 50(6): 107-108.

[8] Wang Y. Problems and Countermeasures in Communication between Disinfection Supply Centers and Clinical Departments. World's Latest Medical Information Digest, 2021, 21(12): 303-304.

[9] Li P. The Manifestation of Traceability Systems in Disinfection Supply Centers. Health Companion, 2020, (3): 295.

[10] Zheng W, Huan LQ, Chen SH, Chen JL, Li P. Application of Quality Management System in Position Management of Disinfection Supply Centers. Nursing Research, 2015, 29(2): 590-591.