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Service Delivery Determinants of Laboratory Turnaround Time in Hospital-Based Laboratories

Angelo James G. Salvador

Student, AGO Medical and Educational Center Graduate School of Health

***Abstract*—** This study determined the service delivery determinants of laboratory turnaround time in hospital-based laboratories and proposed evidence-based recommendations for improving laboratory efficiency. A descriptive-correlational research design was used among 79 medical technologists from public and private hospital-based laboratories in Sorsogon Province, Philippines. Total population sampling was employed, and data were gathered using a validated researcher-made questionnaire covering professional profile and six service delivery determinants: patient preparation, specimen collection, specimen processing, equipment utilization, reporting and recording of results, and staffing. Descriptive statistics were used to summarize the data, while the Mann–Whitney U test was applied to compare perceptions between public and private hospital-based laboratory personnel. Findings showed that most respondents were 26–30 years old, female, college graduates, and had 1–3 years of service. Both public and private hospital-based laboratory respondents strongly agreed that all six service delivery areas influence laboratory turnaround time. Specimen processing obtained the highest overall mean among the determinants, indicating its central role in timely laboratory service delivery. The Mann–Whitney U test showed no significant difference between public and private respondents' perceptions. The study recommends standardized pre-analytical procedures, workforce optimization, lean workflow redesign, laboratory information system integration, automation, continuous monitoring, and strengthened interdepartmental coordination.

***Keywords*—** laboratory turnaround time, service delivery determinants, hospital-based laboratories, medical technologists, laboratory efficiency.

I. INTRODUCTION

Clinical laboratories perform a central role in the delivery of safe, timely, and evidence-based health care. Laboratory results guide physicians in diagnosis, treatment planning, patient monitoring, and clinical decision-making. Because many medical decisions depend on laboratory findings, the quality of laboratory service is not measured only by the accuracy and reliability of results, but also by the timeliness with which those results are made available to clinicians and patients. In this context, laboratory turnaround time (TAT) has become one of the most important indicators of laboratory efficiency and service quality. Turnaround time generally refers to the interval required to complete a process. In clinical laboratory practice, it refers to the period from the request, collection, or receipt of a laboratory specimen to the verification and release of laboratory results. As emphasized by Wisialowski (2024), laboratory TAT is closely associated with service quality, accurate reporting, and the overall efficiency of laboratory operations.

Timely laboratory reporting is especially important because delays in test results can affect the speed and quality of clinical decisions. Dawande et al. (2022) described turnaround time as an efficacy measure for medical laboratories, emphasizing that timely, accurate, and reliable results are essential to quality patient care. Shorter TAT allows clinicians to make faster decisions, initiate treatment earlier, and reduce unnecessary delays in patient management. Conversely, delayed TAT may prolong waiting time, delay diagnosis and treatment, increase hospital stay, and contribute to repeated or unnecessary test requests. Halton (2024) similarly reported that laboratory turnaround time remains a major source of complaints in clinical laboratory services, particularly when laboratories face high sample volumes, pre-analytical errors, staffing shortages, and inefficient workflow systems. These concerns show that TAT is not simply

a technical laboratory issue but a broader service delivery concern that affects patients, clinicians, hospital administrators, and the health system as a whole.

Laboratory turnaround time is influenced by multiple factors across the pre-analytical, analytical, and post-analytical phases of laboratory testing. The pre-analytical phase includes patient preparation, specimen collection, specimen identification, labeling, handling, and transport. Errors at this stage may result in specimen rejection, recollection, retesting, or delayed processing. Improve Medical (2024) emphasized the importance of proper patient preparation before blood collection, noting that inadequate preparation may compromise the reliability of laboratory results and may lead to delayed diagnosis or inappropriate treatment. Chhatriwala et al. (2021) also identified pre-analytical issues such as hemolysis, microclots, delayed sample arrival, incorrect time entries, and centrifugation delays as contributors to prolonged TAT. These findings indicate that delays often begin before actual testing occurs, making patient preparation and specimen collection critical determinants of laboratory efficiency.

The analytical phase also plays a major role in turnaround time. This phase involves specimen processing, prioritization of urgent or STAT samples, testing procedures, equipment performance, and quality control. According to Wisialowski (2024), TAT may vary depending on the type and complexity of the test, the quality of the sample, the performance of instruments, and quality control requirements. Rajeev et al. (2025) reported that operational inefficiencies, equipment malfunctions, and staffing shortages contributed to delays in clinical biochemistry laboratory processes. Similarly, Zamzam et al. (2021) highlighted the importance of medical equipment reliability and maintenance in improving health care service quality. These studies suggest that even when specimens are properly collected, laboratory delays may still occur when analyzers are unavailable, equipment malfunctions arise, maintenance is insufficient, or workflow is poorly organized.

The post-analytical phase, which includes result validation, recording, reporting, and communication of results, is another important component of TAT. Manual documentation, transcription errors, delayed verification, and inefficient reporting systems can extend the time between test completion and result availability. Halton (2024) emphasized the role of Laboratory Information Management Systems in measuring and reducing TAT by digitizing laboratory workflow phases, from specimen tracking to result reporting. Antonio et al. (2024) similarly noted that laboratory information systems can streamline sample handling, processing, and reporting while reducing manual effort and transcription errors. In the same way, CloudLIMS (2025) pointed out that laboratory information systems are increasingly important in managing laboratory data, tracking samples, automating workflows, and improving data retrieval. These studies support the view that information technology and automation are essential tools for improving laboratory turnaround time, particularly in laboratories that process large numbers of specimens.

Human resources are also fundamental to laboratory turnaround time. Adequate staffing, staff competency, workload distribution, and proper scheduling influence the ability of laboratories to manage routine and urgent tests efficiently. Hines (2025) identified laboratory capacity, workforce availability, testing procedures, workload, and laboratory resources as important factors affecting TAT. Turner (2026) further explained that staff shortages may lead to longer turnaround times, increased errors, inefficient workflows, and greater pressure on existing personnel. In hospital-based laboratories, staffing concerns become more significant during peak hours, high specimen volume, equipment downtime, or emergency situations. Thus, even when laboratory equipment and information systems are available, service delivery may remain inefficient when human resource systems are inadequate.

Recent studies have emphasized the need for workflow improvement and quality management approaches to reduce laboratory delays. Febrian et al. (2024) found that workflow optimization, task reorganization, workflow segmentation, and

administrative simplification can improve TAT efficiency, especially in resource-limited settings. Cherie et al. (2024), in a systematic review, reported that lean methodology can reduce laboratory turnaround time by eliminating waste, reducing waiting time, improving personnel engagement, and enhancing patient and customer satisfaction. Alain et al. (2021) also emphasized that TAT is a valuable indicator of laboratory efficiency and recommended that laboratories periodically evaluate their established turnaround time. These findings show that effective TAT management requires continuous monitoring, identification of bottlenecks, root cause analysis, and implementation of corrective actions.

The present study is anchored on the idea that laboratory turnaround time is a service delivery outcome shaped by both structural and process-related determinants. Donabedian's Structure–Process–Outcome model provides a useful framework for understanding this relationship. In this framework, laboratory structure includes staffing, equipment, workload, resources, and policies; laboratory processes include pre-analytical, analytical, and post-analytical procedures; and the outcome is reflected in the timeliness and quality of laboratory service. Rogers' Diffusion of Innovation Theory also supports the study by explaining how laboratories adopt technologies and evidence-based practices, such as automation, electronic reporting, barcode systems, and workflow management tools, to improve service delivery. Together, these frameworks suggest that efficient laboratory turnaround time depends on the interaction of organizational resources, work processes, and innovation adoption.

Despite the recognized importance of TAT, delays in laboratory result release continue to be a common concern in hospital-based laboratories. In the context of Sorsogon Province, hospital-based laboratories have reportedly experienced increased delays in the turnaround time of laboratory results. However, the service delivery determinants that influence TAT in these laboratories have not yet been clearly identified and systematically examined. This gap is significant because delayed laboratory results can affect clinical decision-making, patient satisfaction, hospital workflow, and overall quality of care. Furthermore, both public and private hospital-based laboratories may experience similar or different operational challenges related to patient preparation, specimen collection, specimen processing, equipment utilization, reporting and recording of results, and staffing. Without a clear assessment of these determinants, hospital administrators, chief medical technologists, and laboratory personnel may have limited evidence for developing targeted interventions to reduce delays and improve laboratory efficiency.

Therefore, this study aimed to determine the service delivery determinants of laboratory turnaround time and propose evidence-based recommendations for improving laboratory efficiency. Specifically, the study sought to describe the professional profile of medical technologists in hospital-based laboratories in terms of age, sex, educational attainment, and length of service; assess the service delivery determinants of laboratory turnaround time in relation to patient preparation, specimen collection, specimen processing, equipment utilization, reporting and recording of results, and staffing; compare the perceived service delivery determinants of laboratory turnaround time between medical technologists working in public and private hospital-based laboratories; and propose evidence-based recommendations to improve laboratory service delivery and reduce turnaround time in hospital-based laboratories.

II. METHODOLOGY

This study employed a descriptive-correlational research design to determine the service delivery determinants of laboratory turnaround time in hospital-based laboratories. The study was conducted in Sorsogon Province among medical technologists employed full-time in both public and private hospital-based laboratories. A total population sampling technique was used because the target population was small and clearly identified. The respondents consisted of 79 medical technologists, with 32 from private hospital-based laboratories and 47 from government hospital-based laboratories. The study included hospital-based laboratories listed by the Department of Health–Health Facilities and Services Regulatory

Bureau, while medical technologists from freestanding laboratories and clinic-based laboratories were excluded.

Data were gathered using a researcher-made, self-administered questionnaire developed based on the study objectives, related literature, and previous studies. The instrument had two parts: the first part gathered the professional profile of the respondents in terms of age, sex, educational attainment, and length of service, while the second part assessed the service delivery determinants of laboratory turnaround time in terms of patient preparation, specimen collection, specimen processing, equipment utilization, reporting and recording of results, and staffing. Each determinant contained five indicators measured using a five-point Likert scale ranging from strongly disagree to strongly agree. The questionnaire was reviewed by experts for content validity and was pilot-tested among ten medical technologists from selected freestanding laboratories and polyclinics in Sorsogon Province before final data collection.

Before the actual survey, the researcher secured the list of hospital-based laboratories from the DOH-HFSRB and obtained permission from the concerned government and private hospital authorities. The validated questionnaires, together with informed consent forms and data privacy notices, were distributed to the identified respondents. Completed questionnaires were retrieved, checked for completeness, organized, tabulated, and prepared for analysis. Data were analyzed using Microsoft Excel and Jamovi. Frequency, percentage, and mean were used to describe the respondents' profile and the perceived determinants of turnaround time, while the Mann–Whitney U test was used to compare the perceptions of medical technologists from public and private hospital-based laboratories. Ethical standards were observed by ensuring voluntary participation, confidentiality, anonymization of data, and secure storage of research files.

III. RESULTS

Professional profile of medical technologists in hospital-based laboratories

Table 1 presents the demographic and professional profile of the 79 medical technologists who participated in the study. The data show that the largest proportion of respondents were aged 26–30 years old, comprising 40.5% of the sample, followed by those aged 21–25 years old at 31.6%.

This indicates that most respondents were relatively young and were in the early stage of their professional practice. In terms of sex, female respondents were more represented, accounting for 55.7%, while males comprised 40.5%. For educational attainment, the great majority were college graduates at 84.8%, while only a small proportion had master's units or had completed a master's degree. In terms of length of service, most respondents had 1–3 years of experience, representing 32.9% of the sample, followed by those with less than one year of experience at 20.3%.

Table 1. *Professional Profile of the Medical Technologists in Hospital-Based Laboratories (N=79)*

Profile Variable	Category	Frequency	Percentage
Age	21–25 years old	25	31.6%
	26–30 years old	32	40.5%
	31–35 years old	12	15.2%
	36–40 years old	1	1.3%
	Above 40 years old	9	11.4%
Sex	Male	32	40.5%
	Female	44	55.7%
	Prefer not to say	3	3.8%
Educational Attainment	College graduate	67	84.8%
	With master's units	9	11.4%
	Master's graduate	3	3.8%
	With doctoral units	0	0.0%

	Doctorate graduate	0	0.0%
Length of Service	Less than 1 year	16	20.3%
	1–3 years	26	32.9%
	4–6 years	13	16.5%
	7–10 years	13	16.5%
	More than 10 years	11	13.9%

These findings suggest that hospital-based laboratories in the study setting are largely staffed by young, early-career medical technologists who meet the basic professional qualification for practice. This may be beneficial because younger professionals may be more adaptable to technological innovations, automated systems, and new workflow procedures. However, the relatively small number of respondents with longer years of service may also indicate possible limitations in mentorship, institutional memory, and advanced technical leadership within laboratory units. Since laboratory turnaround time is affected not only by equipment and workflow but also by staff competence, experience, and decision-making, the professional profile of medical technologists is an important contextual factor in interpreting service delivery performance.

The findings are supported by Lovendino's 2024 study on medical technologists in Bicol Region hospitals, which similarly reported that the medical technology workforce included a notable female representation and that medical technologists continued to perform their responsibilities despite workplace challenges such as limited professional development opportunities and insufficient compensation. However, the present study differs from Lovendino's findings in terms of age and educational advancement, since Lovendino reported a more diverse and older workforce with higher postgraduate engagement, while the current study shows a younger workforce with limited graduate-level attainment. This comparison suggests that workforce composition may vary across hospital settings, but professional development remains an important issue in strengthening laboratory service delivery.

Service delivery determinants of laboratory turnaround time

Table 2 presents the six service delivery determinants of laboratory turnaround time: patient preparation, specimen collection, specimen processing, equipment utilization, reporting and recording of results, and staffing. Both private and government hospital-based laboratories obtained "Strongly Agree" interpretations across all determinants.

This means that medical technologists in both groups perceived all six areas as important contributors to laboratory turnaround time. Among private hospital-based laboratories, specimen processing obtained the highest overall mean of 4.66. Among government hospital-based laboratories, specimen processing also obtained the highest overall mean of 4.74. This indicates that specimen processing was perceived as the strongest determinant of TAT in both sectors.

Table 2. *Service Delivery Determinants of Laboratory Turnaround Time*

Service Delivery Determinant	Private Hospitals Mean	Interpretation	Government Hospitals Mean	Interpretation
Patient preparation	4.63	Strongly Agree	4.60	Strongly Agree
Specimen collection	4.61	Strongly Agree	4.61	Strongly Agree
Specimen processing	4.66	Strongly Agree	4.74	Strongly Agree
Equipment utilization	4.64	Strongly Agree	4.63	Strongly Agree
Reporting and recording of results	4.56	Strongly Agree	4.56	Strongly Agree
Staffing	4.64	Strongly Agree	4.71	Strongly Agree

The results show that TAT is not determined by a single laboratory activity but by the interaction of pre-analytical, analytical, and post-analytical processes. Patient preparation affects whether specimens can be collected properly and on time. Specimen collection affects the quality and acceptability of samples. Specimen processing affects how quickly samples move through the laboratory workflow. Equipment utilization determines whether testing can proceed without interruption. Reporting and recording influence how quickly verified results reach clinicians. Staffing affects the capacity of the laboratory to respond to workload demands, especially during peak hours. Therefore, the findings imply that laboratory efficiency requires an integrated approach rather than isolated improvement in only one phase.

In terms of patient preparation, the findings suggest that clear instructions, patient compliance, and adequate explanation of procedures are important in preventing delays. The manuscript supports this through Improve Medical's 2024 article, which emphasized that proper patient preparation before blood collection is necessary to ensure accurate and reliable results, while inadequate preparation may lead to delayed diagnosis, misdiagnosis, inappropriate treatment, and compromised patient safety. This supports the present finding that inadequate preparation and repeated specimen collection increase TAT.

For specimen collection and processing, the findings indicate that improper collection, delayed transport, high specimen volume, accurate labeling, standardized protocols, and STAT prioritization are central to TAT performance. These results are consistent with Chhatriwala et al. (2021), who identified pre-analytical, analytical, and post-analytical errors as causes of delayed TAT, including hemolysis, microclots, late sample arrival, centrifugation delay, machine calibration issues, testing delays, result validation delays, and manual data entry. The manuscript also cites Mumtaz et al. (2024), who reported that hemolyzed and clotted samples contributed to delayed TAT and recommended regular monitoring of TAT-related factors.

The high ratings for equipment utilization indicate that equipment malfunction and limited analyzer availability are perceived as major causes of delayed TAT. This is supported by Rajeev et al. (2025), who reported that operational inefficiencies, equipment malfunctions, and staff shortages contributed to TAT delays in clinical biochemistry laboratories. The manuscript further supports this through Zamzam et al. (2021), who emphasized the importance of investing in medical equipment purchase and maintenance to sustain equipment function and improve healthcare service quality.

For reporting and recording of results, both groups strongly agreed that efficient laboratory information systems improve TAT. This finding is consistent with Halton (2024), who emphasized that LIMS helps measure and manage TAT by digitizing workflow phases from sample collection to result reporting. It is also supported by Antonio et al. (2024), who discussed that laboratory information systems reduce manual effort, minimize transcription errors, and streamline sample handling, processing, and reporting. Therefore, the study's findings reinforce the need to strengthen LIS/LIMS integration to improve result release and reduce post-analytical delays.

Staffing was also strongly perceived as a determinant of TAT, particularly in relation to adequate staffing, staff competency, high workload, staff shortages, and proper scheduling.

This finding is supported by Hines (2025), who identified laboratory workforce, laboratory capacity, resources, sample handling, testing procedures, and laboratory workload as factors affecting TAT. It is also supported by Turner (2026), who noted that insufficient staffing can lead to longer turnaround times, more errors, inefficient workflows, increased workload, and longer patient waiting times.

Perceived service delivery determinants of laboratory turnaround time between medical technologists working in public and private hospital-based laboratories.

Table 3 presents the Mann–Whitney U test result comparing the perceived service delivery determinants of laboratory turnaround time between medical

technologists working in private and government hospital-based laboratories. The test yielded a U value of 736 and a p-value of 0.873. Since the p-value is greater than the 0.05 level of significance, the result indicates no statistically significant difference between the two groups.

Table 3. *Perceived Service Delivery Determinants of Laboratory Turnaround Time between Medical Technologists of Public and Private Hospital-Based Laboratories*

Variable Compared	Test Statistic	p-value	Interpretation
Service delivery determinants of laboratory turnaround time	U = 736	0.873	Not Significant

This means that medical technologists from both public and private hospital-based laboratories had comparable perceptions regarding the determinants of laboratory turnaround time.

Although the two sectors may differ in ownership, administrative structure, resource allocation, and patient volume, the findings suggest that the operational factors affecting TAT are generally similar. Both groups recognized the importance of patient preparation, specimen collection, specimen processing, equipment utilization, reporting and recording, and staffing. This implies that TAT-related challenges are not exclusive to one type of hospital but are shared across hospital-based laboratories.

The result also suggests that quality improvement measures may be applied across both sectors. Since there was no significant difference between public and private laboratories, evidence-based strategies such as standardizing specimen collection, improving equipment maintenance, strengthening LIS integration, optimizing staffing, and conducting regular TAT audits may be relevant to both groups. This strengthens the argument that laboratory turnaround time should be addressed as a system-wide service delivery concern rather than a problem limited to one institutional category.

The finding is supported by Ahmadzai et al. (2023), whose study emphasized that TAT management is affected by knowledge gaps, inconsistent laboratory practices, workload issues, equipment reliability problems, and pre-analytical errors. Their findings support the need for standardized training, improved resource allocation, workflow enhancement, and institutional guidelines. These recommendations are consistent with the present study's finding that both public and private hospital-based laboratories require similar quality improvement interventions to improve TAT performance.

Proposed evidence-based recommendations to improve laboratory service delivery and reduce turnaround time in hospital-based laboratories

Table 4 presents the proposed evidence-based recommendations for improving laboratory service delivery and reducing turnaround time. The recommendations are organized into strategic areas: pre-analytical standardization, workforce optimization and capacity building, lean laboratory workflow remodeling, LIS integration and automation, quality management and continuous monitoring, and interdepartmental coordination. These areas directly respond to the determinants identified in the study and provide practical strategies for addressing delays across the laboratory workflow.

Table 4. *Proposed Evidence-Based Recommendations to Improve Laboratory Service Delivery*

Strategic Area	Recommended Interventions	Expected Outcome
Pre-analytical standardization	Enforce standardized patient preparation protocols; implement barcode-based specimen identification and labeling; support phlebotomy competency training; develop standard specimen rejection criteria.	Reduced specimen rejection, repeat collection, and registration delays.

Workforce optimization and capacity building	Conduct workload-based staffing analysis; optimize shifts based on peak test demand; strengthen CPD programs and refresher courses; assign clear task delegation among laboratory staff.	Improved workflow efficiency and decreased processing delays.
Lean laboratory workflow remodeling	Conduct value stream mapping; apply 5S workplace organization; use single-piece flow processing for high-volume tests; prioritize STAT or urgent specimens.	Streamlined workflow and reduced waiting time across laboratory processes.
LIS integration and automation	Fully implement Laboratory Information System with real-time specimen tracking; use barcode scanning from collection to result release; invest in automated analyzers for high-volume tests.	Faster processing time and improved reporting accuracy.
Quality management system and continuous monitoring	Develop TAT key performance indicators; conduct regular TAT audits; apply root cause analysis for delayed results; implement Plan–Do–Study–Act improvement cycles.	Sustained TAT improvement and stronger accountability.
Interdepartmental coordination	Strengthen communication between nursing wards and laboratories; introduce electronic request and result systems; coordinate target TAT per test with clinical departments.	Reduced communication delays and improved test flow efficiency.

The first recommendation focuses on pre-analytical standardization. This includes standardized patient preparation protocols, barcode-based specimen identification and labeling, phlebotomy competency training, and clear specimen rejection criteria. This is important because many laboratory delays begin before actual testing, particularly when patients are not properly prepared, specimens are mislabeled, samples are rejected, or repeat collection becomes necessary. The expected outcome is the reduction of specimen rejection, repeat collection, and registration delays. This recommendation is supported by the manuscript's cited literature, particularly Chhatriwala et al. (2021), Mumtaz et al. (2024), and Qavi et al. (2023), who identified pre-analytical errors, hemolyzed and clotted samples, insufficient specimen volume, and specimen quality issues as major contributors to prolonged TAT.

The second recommendation concerns workforce optimization and capacity building. Since staffing was strongly identified as a determinant of TAT, the proposed actions include workload-based staffing analysis, shift optimization during peak demand, continuous professional development, refresher courses, and clear task delegation. This recommendation addresses the issue that even when laboratory systems and equipment are available, delays may still occur when staffing is insufficient or poorly scheduled. This is supported by Hines (2025), Rajeev et al. (2025), and Turner (2026), who all emphasized the role of workforce adequacy, workload management, staffing shortages, and staff competency in laboratory turnaround time.

The third recommendation involves lean laboratory workflow remodeling. The proposed actions include value stream mapping, 5S workplace organization, single-piece flow processing for high-volume tests, and prioritization of STAT specimens. This is appropriate because the study found that specimen processing had the highest overall mean among the determinants, indicating that workflow efficiency is central to TAT performance. Lean workflow redesign can help identify bottlenecks, remove unnecessary steps, and reduce waiting time. This is supported by Febrian et al. (2024), who reported that workflow optimization, task reorganization, workflow segmentation, and administrative simplification improved TAT efficiency in resource-limited settings. It is also supported by Cherie et al. (2024), who recommended lean methodology to reduce turnaround

time, eliminate waste, empower personnel, and improve patient and customer satisfaction.

The fourth recommendation highlights LIS integration and automation. The proposed actions include full implementation of LIS with real-time specimen tracking, barcode scanning from specimen collection to result release, and investment in automated analyzers for high-volume routine tests. This recommendation is strongly aligned with the study's finding that efficient laboratory information systems improve TAT. LIS and automation reduce manual recording, transcription errors, delayed result release, and inefficient tracking of specimens. Halton (2024), CloudLIMS (2025), Harris (2025), and Antonio et al. (2024) support this recommendation by emphasizing that laboratory information systems and automated reporting improve tracking, reduce processing time, lessen errors, and streamline laboratory workflow.

The fifth recommendation focuses on quality management and continuous monitoring. This includes developing TAT key performance indicators, conducting regular TAT audits, applying root cause analysis for delayed results, and using Plan–Do–Study–Act cycles for continuous improvement. This recommendation is important because TAT improvement should not be a one-time intervention but a continuous quality management process. The manuscript cites Alain et al. (2021), who stated that TAT is a valuable indicator of laboratory efficiency and service quality and that established TAT should be periodically evaluated. This is also consistent with the manuscript's discussion that regular review of TAT data, bottleneck identification, and corrective actions are needed to ensure prompt patient treatment.

The final recommendation concerns interdepartmental coordination. Since laboratory turnaround time is affected by communication between laboratory staff, nursing units, physicians, and hospital departments, the proposed interventions include strengthening communication protocols, introducing electronic request and result systems, and coordinating target TAT per test with clinical departments. This recommendation is supported by the manuscript's findings that effective coordination with nursing staff improves specimen collection efficiency and that timely communication supports clinical decision-making. It is also consistent with Mendoza et al. (2024), whose study, as cited in the manuscript, found that technical interventions improving specimen collection and collaboration between the emergency department and laboratory reduced delays and TAT outliers.

Overall, Table 4 translates the study findings into practical improvement measures. The recommendations are directly connected to the major determinants identified in the study and are supported by the cited literature in the manuscript. Collectively, these interventions aim to reduce laboratory turnaround time, improve workflow efficiency, strengthen accountability, enhance accuracy and reliability of test results, and support timely clinical decision-making.

IV. CONCLUSION & RECOMMENDATION

The study concludes that medical technologists working in government hospitals in Sorsogon Province experience very high levels of job dissatisfaction, particularly in the areas of job and daily work experience, career growth and development, and organizational culture and work environment. Furthermore, retention intention was found to be low, with more than three-fourths of respondents expressing no intention to remain in their current positions. The findings also revealed a very strong and significant negative relationship between job dissatisfaction and retention intention, indicating that higher levels of dissatisfaction are associated with a lower likelihood of employee retention. Additionally, demographic factors such as age, marital status, employment status, and salary range were found to influence retention intention and, in some cases, job dissatisfaction. Overall, the study highlights that workplace conditions significantly affect workforce stability and retention among medical technologists in government hospitals.

Government hospitals should implement a comprehensive workforce retention program focused on improving job satisfaction and employee engagement. Priority interventions should include

clarifying job roles and responsibilities, ensuring equitable workload distribution, establishing structured career development and promotion pathways, strengthening mentorship and continuing professional development opportunities, and enhancing management support and employee recognition systems. Hospital administrators should also improve organizational communication, foster a positive workplace culture, and explore strategies to increase employment security, particularly for non-permanent personnel. Regular employee satisfaction assessments and retention monitoring should be conducted to identify emerging concerns and evaluate the effectiveness of implemented interventions. These measures can help strengthen workforce commitment, reduce turnover intentions, and ensure the continuity and quality of healthcare services.

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