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Editorial

Diagnostic Innovation, Population Health, and Human-Centered Systems: Advancing Health and Business Analytics

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Abstract

Volume 2, Issue 2 of the *International Journal of Health and Business Analytics* brings together multidisciplinary research addressing diagnostic innovation, laboratory science, population health, healthcare access, environmental exposure, disease prevention, workforce well-being, and health-system planning. The issue includes studies on artificial intelligence preparedness in parasitological identification, plant-derived antibacterial and staining applications, biochemical and hematological characteristics among older adults, lifestyle disease risks, water and sanitation conditions, microplastics in refillable water containers, and barriers to healthcare among homeless populations. It also presents evaluations of a health-promoting lifestyle program for senior citizens, comparative analyses of professional job satisfaction, workplace well-being in Japanese-owned companies, and long-term breast cancer burden across Asia and Oceania. Collectively, the articles demonstrate that contemporary health inquiry requires integration across biomedical science, public health, environmental monitoring, behavioral analysis, workforce management, and data-informed policy. This editorial situates the contributions within the journal's commitment to methodologically sound, socially relevant, and analytically grounded scholarship. The issue underscores the importance of translating laboratory findings, community-level evidence, workforce experiences, and population forecasts into practical improvements in healthcare delivery, prevention, professional practice, and institutional decision-making.

Keywords: *health analytics; diagnostic innovation; artificial intelligence; population health; healthcare access; environmental health; laboratory medicine; health workforce; disease prevention; Southeast Asia*

Editorial

Volume 2, Issue 2 of the International Journal of Health and Business Analytics (IJHBA) presents a multidisciplinary collection of studies that reflects the expanding scope of contemporary health research. The articles move across laboratory diagnostics, artificial intelligence, antimicrobial investigation, community health assessment, environmental exposure, healthcare access, geriatric health, disease forecasting, occupational well-being, and organizational behavior. Although these contributions differ in research setting, population, and methodology, they share a common objective: to generate evidence that can improve health outcomes, professional practice, institutional performance, and public decision-making.

The issue demonstrates that health analytics should not be understood solely as the statistical analysis of clinical information. It encompasses the systematic interpretation of laboratory evidence, population indicators, environmental conditions, behavioral patterns, institutional processes, workforce experiences, and long-term disease trajectories. Health outcomes are produced within interacting biological, technological, social, environmental, and organizational systems. Effective health research must therefore move beyond disciplinary boundaries and consider the broader contexts in which illness, care, prevention, and professional practice occur.

Artificial intelligence and laboratory preparedness

The issue opens with an investigation of artificial intelligence preparedness and perceived challenges in identifying soil-transmitted helminths among medical technologists in Metro Manila (Fernandez et al., 2026). The

study addresses an important development in diagnostic medicine: the growing potential of artificial intelligence to support laboratory identification and decision-making. Parasitological examination traditionally depends on professional competence, specimen quality, microscopy, and the accurate recognition of morphological characteristics. AI-assisted identification may support consistency and efficiency, but successful implementation also depends on infrastructure, training, data quality, user confidence, ethical safeguards, and appropriate professional oversight.

The significance of this contribution lies not merely in the introduction of a new technology but in its attention to preparedness. Technological capability does not automatically translate into effective adoption. Medical technologists must be equipped to understand the strengths and limitations of algorithmic systems, recognize possible errors, and retain responsibility for professional interpretation. The article therefore positions AI adoption as both a technical and institutional concern. It invites further consideration of how health organizations can introduce computational tools without weakening professional judgment, diagnostic accountability, or patient safety.

Plant-based innovations in laboratory and antimicrobial research

Two studies investigate the possible application of plant-derived materials in laboratory and antimicrobial settings. Parallag et al. (2026) examine the combined antibacterial effect of *Azadirachta indica*, commonly known as neem, leaf extract and clindamycin against *Staphylococcus aureus*. The study contributes to continuing scientific interest in plant-based bioactive compounds, antimicrobial effectiveness, and the potential interaction between natural extracts and established pharmaceutical agents.

Research of this kind is relevant amid continuing concern over antimicrobial resistance and the need to identify complementary or alternative antimicrobial strategies. However, the translation of laboratory evidence into clinical practice requires careful validation, standardization, toxicity assessment, dosage determination, and comparison with accepted therapeutic protocols. The contribution is therefore valuable not as an immediate substitute for established treatment but as part of the exploratory scientific process through which possible antimicrobial applications are identified and evaluated.

Alba et al. (2026), meanwhile, assess the effectiveness of *Coleus blumei*, or mayana, leaf crude extract as an alternative staining reagent for urine sediment analysis. Staining is an essential component of laboratory visualization because it improves differentiation among cells, microorganisms, crystals, casts, and other sediment components. The investigation of a plant-based alternative raises practical questions concerning affordability, local availability, sustainability, staining consistency, and diagnostic clarity.

This study reflects the importance of context-sensitive laboratory innovation. In settings where imported reagents are expensive or inconsistently available, locally sourced alternatives may offer practical value, provided that their reliability, stability, sensitivity, and specificity are adequately established. Together, the neem and mayana studies demonstrate how laboratory research can connect indigenous or locally available biological resources with contemporary scientific investigation.

Clinical and community-based health assessment

The issue also includes a community-based analysis of hematological, biochemical, and lipid-profile characteristics among elderly participants (Patron et al., 2026). Older populations experience complex and interacting risks related to metabolic change, cardiovascular disease, nutrition, chronic inflammation, declining physiological reserve, and multimorbidity. Examining relationships among hematological, biochemical, and lipid indicators can contribute to a more integrated understanding of health status among community-dwelling older adults.

The value of such research extends beyond the identification of abnormal test results. Correlational analysis may help clarify patterns that warrant further clinical attention, preventive screening, or longitudinal investigation. Community-based laboratory data can also support local health planning by identifying common risk profiles and informing targeted interventions for older populations. As societies confront demographic ageing, evidence on senior health will become increasingly important for healthcare systems, local governments, families, and community organizations.

A related contribution examines lifestyle disease risks among beneficiaries of the Centro Escolar University Community Outreach Department at Claro M. Recto High School (Cabanban et al., 2026). Lifestyle-related diseases are influenced by interacting behavioral, environmental, socioeconomic, and biological factors. Risk assessment provides an opportunity to identify preventable concerns before they progress into more serious chronic conditions.

The study also illustrates the role of educational institutions in community health engagement. University outreach can serve not only as an extension activity but as a structured platform for screening, health education, risk communication, data collection, and referral. When appropriately designed, community-based assessments can connect academic expertise with local health needs and strengthen the preventive orientation of health services.

Prevention and health promotion are further represented by the quasi-experimental evaluation of the Golden STEPS Program among senior citizens (M. J. B. Catipon & M. Catipon, 2026). By examining health-promoting lifestyle outcomes before and after program participation, the study addresses the practical question of whether organized community interventions can influence health-related behavior among older adults.

Programs for senior citizens are most effective when they move beyond one-time information campaigns and support sustained engagement in physical activity, nutrition, stress management, social connection, personal responsibility, and appropriate use of health services. The evaluation of such initiatives is essential because it provides evidence for program improvement, resource allocation, replication, and institutional support. The study thus connects behavioral health promotion with community-program analytics.

Water, sanitation, and environmental exposure

Environmental and household conditions are central to two articles in this issue. Marcos et al. (2026) examine household water, sanitation, and hygiene conditions and reported diarrhea occurrence in selected barangays of Sampaloc, Manila. Water, sanitation, and hygiene—or WASH—remain fundamental determinants of health. Diarrheal illness is influenced not only by water sources but also by storage practices, toilet access, hand hygiene, household crowding, waste disposal, food handling, and environmental contamination.

The study is significant because WASH problems often persist within urban environments despite the apparent proximity of households to health facilities, public utilities, and government services. Urban density, unequal infrastructure, informal housing, drainage limitations, and inconsistent access to safe water can create localized health vulnerabilities. Community-level evidence is therefore necessary for identifying conditions that may be hidden by broader municipal or national statistics.

Ylagan et al. (2026) investigate the physicochemical characteristics of microplastics found in refillable water-gallon containers. This article addresses an emerging environmental-health concern associated with plastic production, repeated container use, water processing, storage conditions, transportation, and material degradation. Refillable water containers are widely used because they provide an accessible alternative to household filtration or direct consumption of tap water. Their widespread use makes the assessment of possible particulate contamination particularly relevant.

Microplastic research requires careful interpretation because the presence and characterization of particles do not, by themselves, establish a specific clinical outcome. Nevertheless, environmental monitoring is a necessary first stage in evaluating exposure pathways and determining whether additional toxicological, regulatory, or epidemiological investigation is warranted. The article therefore contributes to the developing evidence base on water safety and plastic-related environmental exposure.

Healthcare access and social exclusion

Macatangay and Magnaye (2026) examine unmet needs and barriers to healthcare access among homeless individuals. This contribution draws attention to a population frequently excluded from conventional healthcare systems and underrepresented in institutional datasets. Homelessness can create overlapping barriers related to cost, transportation, documentation, discrimination, mobility, continuity of care, personal safety, health literacy, and competing survival priorities.

Healthcare access cannot be assessed only by counting available facilities or services. A service may formally exist while remaining practically inaccessible to people who lack identification, stable residence, financial resources,

social support, or confidence in institutions. The study therefore encourages a more substantive understanding of access—one that considers whether individuals can recognize a health need, seek assistance, reach an appropriate provider, receive respectful treatment, and continue care over time.

The article also reinforces the ethical importance of including marginalized populations in health research and planning. Evidence concerning homelessness should inform not only clinical services but also outreach design, social protection, referral systems, mental health support, housing policy, and interagency coordination. Addressing unmet health needs requires institutional flexibility and collaboration across health, welfare, local government, and civil-society systems.

Disease burden and regional health-system planning

Diwa et al. (2026) provide a forecasting analysis of the global breast cancer burden using Global Burden of Disease 2023 evidence, with particular attention to Southeast Asia, East Asia, and Oceania from 2024 to 2050. Forecasting research occupies an important place in health analytics because health systems must prepare for future demand rather than merely respond to present conditions.

Breast cancer trajectories are shaped by population growth, ageing, reproductive patterns, lifestyle change, screening availability, diagnostic capacity, treatment access, survival outcomes, and health-system inequality. Regional forecasts can therefore support planning for oncology services, diagnostic infrastructure, workforce preparation, financing, pharmaceutical access, survivorship care, and public health communication.

The article's regional orientation is especially important because global trends can conceal substantial differences among countries and health systems. Some economies possess extensive screening and treatment infrastructure, while others continue to face late-stage diagnosis, limited specialist availability, geographic inequality, and high out-of-pocket costs. Forecasting should consequently be linked to questions of preparedness, equity, and health-system capacity rather than interpreted only as a statistical projection.

Professional practice, job satisfaction, and workplace well-being

Two articles extend the issue from community and clinical health into the organizational conditions surrounding professional work. Maribeth Catipon et al. (2026) compare job satisfaction in medical and naturopathic practice in Laguna, Philippines. The study recognizes that healthcare is delivered through diverse professional and therapeutic environments, each characterized by different work expectations, patient relationships, institutional structures, and conceptions of practice.

Job satisfaction has implications for retention, service quality, motivation, professional identity, and continuity of care. Comparisons between medical and naturopathic practitioners may illuminate how autonomy, workload, recognition, compensation, working conditions, interpersonal relationships, and alignment with professional values influence workplace experience. Such evidence is relevant to both health management and workforce development.

Maku Catipon and M. J. B. Catipon (2026) examine work context, job satisfaction, and positive affect among Filipino workers in Japanese-owned companies. Although the study is situated outside a strictly clinical environment, its inclusion is consistent with the journal's recognition that workplace conditions are important determinants of psychological and occupational well-being. Organizational culture, supervisory practices, workload, job security, communication, and cross-cultural management can all influence employee affect and satisfaction.

This contribution also illustrates the "business analytics" dimension of IJHBA. Health-related outcomes are shaped not only within hospitals and laboratories but also in workplaces where employees spend a substantial portion of their lives. Positive affect and job satisfaction matter because they are associated with motivation, interpersonal functioning, organizational commitment, stress experience, and overall quality of working life. Examining these relationships can assist employers in developing more humane and effective management systems.

Integrating evidence across health and organizational systems

Taken together, the articles in this issue demonstrate that health challenges rarely belong to only one analytical level. Diagnostic preparedness depends on technology, competence, and institutional readiness.

Laboratory innovation depends on scientific validation, resources, and practical feasibility. Chronic-disease prevention depends on behavior, community engagement, and early assessment. Water-related illness depends on infrastructure, household practice, and environmental exposure. Healthcare access depends on both service availability and social inclusion. Workforce well-being depends on management, organizational culture, and professional context. Disease forecasting depends on demographic trends, data quality, and health-system capacity.

The issue also illustrates the importance of combining different forms of evidence. Experimental and laboratory studies provide information about biological materials and diagnostic applications. Cross-sectional and correlational studies identify patterns within populations. Quasi-experimental evaluation examines changes associated with organized intervention. Thematic, comparative, and forecasting analyses broaden understanding across professional and geographic contexts. No single methodological approach is sufficient for addressing the full complexity of health and organizational systems.

An equally important theme is translation. Scientific evidence becomes socially valuable when it informs practice, policy, education, resource allocation, or future research. An alternative staining reagent must eventually be assessed for practical laboratory use. An antimicrobial combination must undergo further validation before clinical application. An AI system must be integrated into professional practice responsibly. A community risk assessment should guide prevention and referral. A disease forecast should influence health-system preparation. Evidence concerning homeless populations must result in more accessible care arrangements. Findings on employee well-being should inform organizational improvement.

Volume 2, Issue 2 therefore reinforces the mission of IJHBA as an interdisciplinary venue connecting biomedical research, public health, health systems, organizational analysis, and evidence-based management. The issue recognizes that health and business analytics are not separate domains. Healthcare institutions, laboratories, community programs, workplaces, and public agencies all require sound data, effective processes, responsible leadership, and contextually appropriate decisions.

Through this collection, IJHBA invites researchers, health professionals, educators, managers, policymakers, and community stakeholders to engage with evidence across disciplinary boundaries. The journal remains committed to scholarship that is methodologically transparent, ethically responsible, practically relevant, and attentive to the diverse health needs of individuals, organizations, and populations.

References

Alba, M. J. E., Ariamado, J. K. P., Busio, M. C. D., De Vera, A. M. A., Fider, R. A. L., Gaa, J. G. C., & Jiao, K. K. A. (2026). Effectiveness of Coleus blumei (mayana) leaf crude extract as an alternative staining reagent for urine sediment staining. International Journal of Health and Business Analytics, 2(2). https://doi.org/10.65166/vdj5nq43

Cabanban, I. D., Matibag, C. M. M., Macalintal, M. C. G., Guivencan, J. K. D., Esmail, J. J. B., Cortuna, A. P., Comia, M. J. J. C., Chua, F. M. J., Calimag, M. K. L. V., Bernardo, J. Y. C., & Penarroyo, D. R. P. (2026). Lifestyle disease risk assessment of Centro Escolar University Community Outreach Department beneficiaries from Claro M. Recto High School. *International Journal of Health and Business Analytics, 2*(2). https://doi.org/10.65166/d60d0m36

Catipon, M., Catipon, M., & Catipon, M. J. B. (2026). Comparing job satisfaction in medical and naturopathic practice in Laguna, Philippines. *International Journal of Health and Business Analytics, 2*(2). https://doi.org/10.65166/fcqc8345

Catipon, M., & Catipon, M. J. B. (2026). Work context, job satisfaction, and positive affect among Filipino workers in Japanese-owned companies. *International Journal of Health and Business Analytics, 2*(2). https://doi.org/10.65166/xfdvrh86

Catipon, M. J. B., & Catipon, M. (2026). Health-promoting lifestyle outcomes of the Golden STEPS Program among senior citizens: A quasi-experimental pre-post evaluation. *International Journal of Health and Business Analytics, 2*(2). https://doi.org/10.65166/s665yj18

Diwa, M. L., Quinto, L. F., & Atento, R. G. O. (2026). Breast cancer burden in transition: A GBD 2023 forecasting analysis of global trajectories and health system implications for Southeast Asia, East Asia, and Oceania, 2024–2050. *International Journal of Health and Business Analytics, 2*(2). https://doi.org/10.65166/fxd08j31

Fernandez, M. J. R., Balahim, F. Z. H., Catipay, P. E. S., Dacillo, F. P. Y., Dela Cruz, G. T., Eustaquio, J. R., Zerrudo, J. P., & Quinto, L. F. (2026). Artificial intelligence preparedness and perceived challenges in soil-transmitted helminth identification among medical technologists in Metro Manila. *International Journal of Health and Business Analytics, 2*(2). https://doi.org/10.65166/z96vbj06

Macatangay, C. F. A., & Magnaye, B. (2026). Unmet needs: Unveiling barriers to healthcare access among the homeless. *International Journal of Health and Business Analytics, 2*(2). https://doi.org/10.65166/pg1zxm84

Marcos, G. S., Ayroso, K. K. A., Baguis, M. L. F., Bayoneto, D. I., Dela Cuesta, H. L. J., & Quinto, L. F. (2026). Household water, sanitation, and hygiene conditions and reported diarrhea occurrence in selected barangays of Sampaloc, Manila. *International Journal of Health and Business Analytics, 2*(2). https://doi.org/10.65166/f0hp0r89

Parallag, K. G. B., Gallen, A. M. Q., Gonzales, S. K. P., Manalo, H. D., Maniego, C. M. O., Padua, M. Y. E., Quinto, L. F., & Amorado, C. (2026). Combined antibacterial effect of *Azadirachta indica* (neem) leaf extract and clindamycin against *Staphylococcus aureus*. *International Journal of Health and Business Analytics, 2*(2). https://doi.org/10.65166/7wsm7178

Patron, A. C., Bermido, C. M., Dizon, M. C. S., & Barlongo, C. (2026). Hematological, biochemical, and lipid profile characteristics and correlational analysis among elderly participants in a community-based population study. *International Journal of Health and Business Analytics, 2*(2). https://doi.org/10.65166/40njzx30

Ylagan, H., Somcio, A. L. M., Sarmiento, M. J. H., San Juan, K. M. C., Ronario, J. S., Mayo, K. C. U., Francisco, A. D. C., Bolon, L. A. V., Marasigan, M. L., & Sumiran, C. L. S. (2026). Physicochemical characterization of microplastics in refillable water gallon containers. *International Journal of Health and Business Analytics, 2*(2). https://doi.org/10.65166/jnrrwf32