



# Society

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## Society

### Creating New Value for a Healthy Society

#### Resolution of Medical Issues through Innovation

##### Initiatives for Dementia

There are currently over 55 million people worldwide who live with dementia, and the number of dementia patients is expected to reach 140 million by 2050 as life expectancy increases globally.\*

Alzheimer’s disease, which accounts for 60% to 70% of all dementia cases, is thought to be triggered by an accumulation of plaque consisting of a protein called amyloid beta (Aβ) in the brain, causing cognitive impairment. Therefore, early diagnosis and interventions are considered to enhance effectiveness of treatment targeting Aβ. However, at present, imaging test of the brain (PET imaging) and cerebrospinal fluid testing to identify the accumulation of Aβ are only available at a limited number of institutions, and their high costs and invasiveness impose a burden on patients.

Sysmex has been engaged in the development of technology to identify the accumulation of Aβ in the brain more easily and rapidly in order to help resolve issues in diagnosing Alzheimer’s disease. In February 2016, Sysmex and Eisai Co., Ltd. entered into a comprehensive, non-exclusive collaboration agreement for the creation of new diagnostic reagents in the field of dementia. By utilizing each other’s technologies and knowledge, Sysmex has been engaged in the development of next-generation diagnostic reagents that will enable the early diagnosis of dementia, the selection of treatment methods, and the monitoring of the resulting effects.

In June 2023, Sysmex launched an assay kit in Japan that aids determination of Aβ accumulation in the brain by measuring Aβ levels in the blood using our automated immunoassay system. This enables easy and quick testing and reduces physical, emotional, and financial burdens on patients with a suspected Aβ accumulation in the brain. It is expected to contribute to early diagnosis and early determination of optimal treatment for patients.

As a further initiative, the development of a biomarker panel is underway to indicate pathological changes at each stage of Alzheimer’s disease, from pre-onset to cognitive dysfunction.

Going forward, we will continue to create new diagnostic technologies for the prevention and treatment of dementia, aiming to contribute to improving the quality of life (QOL) of patients and their families.

\* Source: Global status report on the public health response to dementia. Geneva: World Health Organization; 2021.

#### The Quest for a More Accessible Dementia Diagnosis

“It is a huge step for Sysmex’s product to be approved first in Japan as a diagnostic that can measure Aβ accumulation in the brain by using blood,” says Yoshida, looking back on the road to regulatory approval in Japan. “This really embodies how testing leads to appropriate treatment and increases the value of the treatment.”

“I am hoping that the blood Aβ test reagent will be a model case for future collaborations with a range of partners to generate new patterns of healthcare from the standpoint of testing,”

Click here for details:

[The Quest for a More Accessible Dementia Diagnosis](#)



Member of the Managing Board and Senior Executive Officer Managing Director, CTO, Tomokazu Yoshida

## Contribution to Healthcare through Surgical Support Robots<sup>1</sup>

In recent years, there have been demands for solutions to social issues such as reducing physical burdens on patients, improving their QOL, the early detection of lesions, providing environments in which healthcare professionals can concentrate on treatment with a sense of security, and equalizing the provision of medical care, such as by rectifying medical disparities among regions. Surgical support robots are utilized in laparoscopic surgery, which aims to reduce the physical burden on patients. These robots support healthcare professionals in performing more precise operations. The market size<sup>2</sup> of the surgical support robot industry is expected to expand at a compound annual growth rate (CAGR) of 13%, reaching approximately 2 trillion yen on a global basis by 2030.

Systemex began the full-scale introduction of the surgical support robot to the Japanese market in 2021. Urological, gastroenterological, gynecological, and respiratory surgical fields utilizing the robot are now covered by insurance in Japan, and the cumulative number of cases has reached 4,225 (As of March 31, 2024). These surgical support robots, equipped with operation arms that move smoothly like a human arm, and the capacity to project high-definition images that vividly display even the smallest details with a full high-definition 3D system, were developed with the aim of contributing to the evolution of medicine. In the future, AI will learn surgeons' advanced skills and achieve a feedback functionality for surgical procedures, assisting functionality with intraoperative navigation, remote guidance, and remote training. These prospective advancements in AI capabilities are expected to contribute to the improvement of skills and knowledge of healthcare professionals.

In 2023, a demonstration of remote surgery using the surgical robot system was successfully conducted between Singapore and Aichi, which are approximately 5,000 km apart. This was Japan's first remote surgery demonstration conducted between Singapore and Japan.

Systemex will continue to proceed with its surgical intelligence initiatives and promote digital transformation (DX) to ensure a successful healthcare journey for each patient, including pre-surgery testing and treatment during and after surgery, by combining skills and knowledge developed through testing and diagnostics as well as surgical support robots.

\*1 The surgical support robotic system was developed by Medicaoid Corporation, a joint venture between Systemex Corporation and Kawasaki Heavy Industries, Ltd.

\*2 The market size is indicated on a customer-purchase-price basis. Source: TechSci Research. The figure for 2030 is Medicaoid's projection.

### Award Links

- ▶ [Notice of Receiving the Minister of Health, Labour and Welfare Award at the 6th Japan Medical Research and Development Awards \(medicaoid.com, in Japanese\)](#)
- ▶ [Notice of Receiving the "MM Research Institute Awards 2023" Grand Prize \(medicaoid.com, in Japanese\)](#)
- ▶ [Notice of Receiving the Selection Committee's Special Award at the 11th Technology Management & Innovation Awards \(medicaoid.com, in Japanese\)](#)
- ▶ [Notice of Receiving the Ninth Monodzukuri Nippon Grand Awards, Prime Minister's Award \(medicaoid.com, in Japanese\)](#)

### Stakeholder's Voice

We hope to create a workflow that reduces the burdens on healthcare professionals while also providing higher-quality and more appropriate medical care to patients. We hope to help create a world in which all people involved in medical care can work with ease and patients feel less stressed about going to hospitals. This is an ambitious dream, and our mission to realize it acts as a driving force in our daily work.

Click here for details:

[Contributing to DX in Surgery and Equalization of Medical Care in Order to Provide Greater Peace of Mind and Safety for Healthcare Professionals, Patients, and Their Families](#)



Yuuki Hata, Manager in the MR Business Division

## Contribution to Countermeasures against Antimicrobial Resistance (AMR)<sup>1</sup>

If antimicrobials, which are used to treat infections, are inappropriately used, bacteria in the body may not be terminated sufficiently, and the surviving bacteria may become drug resistant. If drug-resistant bacteria proliferate, antimicrobials will become less effective, making it difficult to treat infections that would otherwise be mild and reversible. If countermeasures against antimicrobial resistance (AMR) are not taken, the number of annual deaths due to AMR is expected to reach 10 million by 2050.<sup>2</sup> This is a high figure, estimated to surpass the number of deaths from cancer. For this reason, AMR is recognized by the World Health Organization (WHO) and various other organizations as a social challenge that must be addressed worldwide.

As a company involved in healthcare, Systemex is working to establish new testing technologies and to develop products that can resolve this issue. In June 2023, we launched a testing system for rapid detection of antimicrobial susceptibility in Europe, which detects the presence or absence of bacteria and assesses the effectiveness of antimicrobials using urine samples from patients suspected of having urinary tract infections.<sup>3</sup> Using a unique and proprietary microfluidic technology,<sup>4</sup> the system delivers the results of the antimicrobial susceptibility testing (AST)<sup>5</sup> in as little as 30 minutes from the start of measurement, a significant reduction compared to the several days required for conventional AST, thereby helping ensure that appropriate antimicrobials are prescribed at first visits to clinics and other primary care settings.

Eventually, in 2024, the system won the Longitude Prize on AMR, the UK's most prominent scientific prize. The award recognizes and supports the team of developers who have made the most significant contribution toward combating AMR through the development of an affordable, rapid, accurate, and easy-to-use POCT<sup>6</sup> system that is necessary for appropriate antimicrobial prescribing in the medical field. Since the award's launch in November 2014, more than 250 development teams worldwide have submitted entries.

Systemex will continuously commit itself to tackling the universal threat of AMR by developing and delivering innovative testing and diagnostic technologies.

\*1 Antimicrobial Resistance (AMR): This phenomenon occurs when living organisms develop resistance to a drug whose efficacy is decreased or neutralized as a result. Bacteria that have developed antimicrobial resistance are known as antimicrobial-resistant bacteria.

\*2 Source: "Antimicrobial Resistance: Tackling a Crisis for the Health and Wealth of Nations." The Review on Antimicrobial Resistance, Chaired by Jim O'Neill.

\*3 Urinary tract infections (UTIs): UTIs are caused by bacteria that proliferate in the urinary tract, spanning from the kidneys to the urethral outlet, resulting in inflammation. These infections can lead to cystitis in the bladder and pyelonephritis in the kidneys. They are among the most commonly encountered bacterial infections in daily clinical practice, with approximately 60% of women experiencing this at least once in their lifetime.

\*Source: American Urological Association Website "Urinary Tract Infections in Adults".

<https://www.urologyhealth.org/urology-a-z/u/urinary-tract-infections-in-adults> (Referred on June 20, 2023)

\*4 Microfluidic technology:

Systemex Astrego's unique proprietary technology that involves creating microchannels at the micrometer or nanometer level. This allows individual bacteria from a fluid sample to be captured and cultured unidirectionally within these microchannels, thereby enabling rapid detection of antimicrobial susceptibility.

<https://www.systemex-astrego.se/technology.html>

\*5 Antimicrobial Susceptibility Testing (AST):

This is a test to determine the efficacy of various antimicrobial drugs against pathogenic bacteria detected in a sample.

\*6 Point-of-Care Testing (POCT):

A generic term for simple clinical testing methods that healthcare professionals perform in close proximity to patients, such as in medical and nursing care, and offer the advantages of reduced testing time and enhanced visibility to patients.

### Stakeholder's Voice

Umeno: Being able to conduct testing easily at any time and see the results quickly not only improves the efficiency of medical care and the patient's QOL, but also results in a sense of ease for both healthcare professionals and patients.

Olsson: The product we have developed uses a basic platform for testing. By varying the application, we can develop products that can be used for a variety of diseases. Believing in our potential, we will continue working toward a world in which less people have a negative experience due to AMR.

Click here for details:

[Tackling the Universal Threat of Antimicrobial Resistance \(AMR\) with New Testing Technology](#)



Tetsuji Umeno, Director in the HUP Business Division (one on the left in the photo)  
Mikael Olsson, CEO of Systemex Astrego AB (on the right in the photo)

## Society

## Improvements in Accessibility to Healthcare

## — Approaches to Global Health and Universal Health Coverage —

Today, many global health issues affect health worldwide and require international collaboration to be solved. Many of these issues are threatening the health of people who cannot access proper medical care due to inadequate healthcare environments and systems.

In the field of global health, Sysmex works to solve issues in testing and diagnosis, the core of its business. As one of our responsibilities as a global company, we will contribute to Universal Health Coverage (UHC)\* by promoting quality testing in emerging and developing countries so that as many people as possible can receive appropriate medical care.

\* UHC: A condition in which all people have access to affordable and proper services to improve their health, prevent or treat illnesses, and recover.

## Contribution to Malaria Elimination

Transmitted by mosquitoes, malaria is one of three major infectious diseases defined by the World Health Organization (WHO) and is prevalent mainly in tropical and subtropical regions. As blood samples are used in testing for malaria, applying technology accumulated in the hematology area, Sysmex developed an automated hematology analyzer to support standardization and optimization of malaria testing. The number of deaths caused by malaria can be reduced through early detection and treatment. By providing an instrument for use in clinical settings that can swiftly and conveniently produce useful results for diagnosis, Sysmex is contributing to the elimination of malaria.

## Innovation in Testing for Malaria

The current mainstream method of testing for malaria uses a rapid diagnostic kit or a microscope. However, both options pose problems such as the time required, ranging from 15 to 30 minutes, including pretreatment, and the requirement for skilled techniques in microscopic testing. In contrast, our hematology analyzer identifies red blood cells infected with the malaria parasite and determines the percentage of infected cells without pretreatment, automatically performing both processes in about one minute<sup>1</sup> with a high degree of accuracy.<sup>2</sup> In addition, since our hematology analyzer calculates eight CBC parameters<sup>3</sup> that are measured at the same time in normal hematology testing, it can provide clinicians with data on other issues, such as anemia and nutrition status, in addition to detecting malaria. Through the use of this technology and product, Sysmex is supporting clinical settings in areas where malaria is endemic.

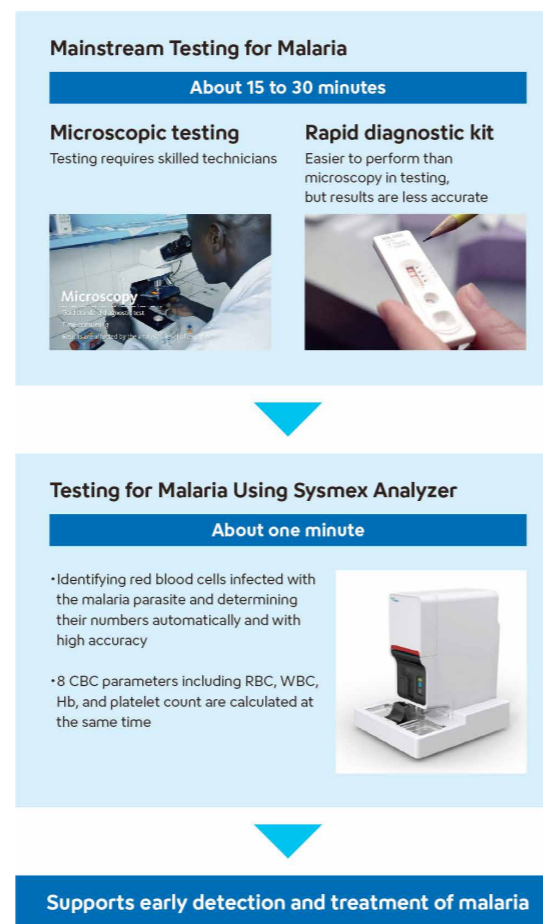
Since 2016, Sysmex Corporation has been involved in the initiatives of the Malaria Consortium, which consists of research institutes and enterprises combating malaria, and contribute to project activities in the field of testing and diagnosis conducted through industry-government-academia partnerships in Asia and Africa.

Sysmex reported on its activities related to a cross-industry co-creation project in the Republic of Ghana at the 10th NIKKEI FT Communicable Diseases Conference held in October 2023.

\*1 Time from the start of measurement to the determination of test results.

\*2 Testing by the analyzer does not mean that malaria diagnosis will replace microscopic testing. Nor does it mean a diagnosis can be made based on the outcome of analyzer testing alone. Diagnostic confirmation is based on a doctor's comprehensive judgment, which includes other clinical information.

\*3 Red blood cell count (RBC), white blood cell count (WBC), hemoglobin volume (Hb), hematocrit value (Ht), mean corpuscular volume (MCV), mean corpuscular hemoglobin (MCH), mean corpuscular hemoglobin concentration (MCHC), and platelet count (PLT).



## Stakeholder's Voice

In response to the increasing demand for malaria testing, we opted to install Sysmex's analyzers.

With the introduction of this instrument, accurate and prompt diagnosis has been realized, leading to increased patient satisfaction.

We are grateful for the way Sysmex analyzers have revolutionized our laboratory with their performance and efficiency.



Interview with Medical Professionals in Cote d'Ivoire

## 11th Zero Malaria Award Received

Sysmex Corporation was honored with the 11th Zero Malaria Award by the non-profit organization Malaria No More Japan, in recognition of its contribution to malaria elimination. This accolade highlights Sysmex's achievements in developing and disseminating innovative malaria diagnostic devices. Since its launch by Malaria No More Japan in 2014, this award has recognized individuals and organizations actively contributing to the international community's goal of achieving zero malaria by 2030.



▶ Click here for details: <https://malarianomore.jp/archives/13709> (Japanese)

## Our Contributions to the Quality of HIV Testing Diagnosis and Treatment

In emerging and developing countries, Sysmex Partec provides a testing system for CD4+ lymphocytes to assist in diagnosing HIV-infected individuals and monitoring their immunological status. It has provided approximately 30 million tests since 2011 on a cumulative basis. The system measures the number and proportion of CD4+ lymphocytes in the blood in just three minutes and is inexpensive, small, and portable, requiring only simple maintenance. Through these features, it aims to ensure everyone has equal access to simple, rapid, and stable testing.

In addition, this system has acquired prequalification\* by the WHO and has been promoted for introduction in countries and regions in which medical resources are limited. It improves the quality of HIV diagnosis and treatment in emerging and developing countries.



System to Test for CD4+ Lymphocytes

\* Certification system under which the WHO guarantees quality, safety and efficacy, with the aim of ensuring that health care products, including pharmaceuticals, testing, and vaccines, can be used with a sense of security in countries lacking in resources. The system was launched in 2001 for pharmaceuticals for HIV/AIDS and is now used as a reference list for procurement in emerging and developing countries. The Global Fund to Fight AIDS, Tuberculosis, Malaria, and other funding organizations preferentially choose products that have acquired prequalification.

## Contribution to Strengthening Healthcare Systems

Emerging and developing countries need to develop the abilities of medical professionals (capacity building) to solve health and medical issues. Sysmex continuously provides products, services, and support to medical institutions while increasing opportunities to provide training and scientific information to medical professionals. It contributes to the early detection and treatment of diseases, as well as improving diagnoses and treatment methods by emphasizing the significance and clinical value of testing and the dissemination of diagnostic technology.

### Training for Medical Professionals

Sysmex has established an in-house training center called Sysmex Academy. In addition, it provides globally unified educational content and skill management tools through the Caresphere™ Academy for online training. This enables us to conduct educational programs on clinical value and training sessions on instrument maintenance for sales distributors and medical professionals. In Africa, Sysmex offers mentorship training that it developed to ensure that laboratories' quality management systems conform to the international ISO 15189 standard.

#### ► Pursuit of Quality and Trust

## Initiative for Digital Transformation (DX) in Ghana

In fiscal 2023, Sysmex Corporation introduced an application (Caresphere™ XQC) for real-time external quality assessment in clinical laboratories on a trial basis in Ghana through the Ministry of Economy, Trade and Industry's "Feasibility Study Project on Emerging Business Opportunities in the African Market (AfDX)," to investigate local needs and issues related to the diffusion of services. Training on Caresphere™ XQC was provided to six medical facilities participating in the trial, allowing them to experience firsthand the value of the service offered. Seminars and other activities were also held to promote understanding of quality improvement in clinical testing among local governments, industry associations, and medical institutions. By leveraging not only digital solutions but also Sysmex's expertise in supporting the spread of external quality assessments in Asian countries over the years, and the public-private partnership scheme for this project, we will contribute to the improvement of local medical standards by promoting the understanding of external quality assessments, and by developing human resources through operational training provided to the Ghanaian Ministry of Health, as well as medical institutions in Ghana.



Seminar in Ghana

## Technical Support to Provide High-quality Test Data

Sysmex has been engaged in support activities to improve the quality and accuracy of clinical tests in Asian countries.

In Mongolia, Sysmex has continued its support activities, expanding its focus to the urinalysis field in 2023, in addition to its existing activities in the hematology, clinical chemistry, immunochemistry, and hemostasis fields. At a survey report meeting attended by approximately 250 laboratory physicians, the largest number ever, Sysmex provides technical and academic knowhow to local clinical laboratory technicians and supports the establishment and operation of a system of external quality assessments for urinalysis field tests conducted nationally, thereby contributing to improving healthcare in Mongolia.

In China, its hematology reference counter has been employed as a National Standard\* for Blood Cell Count since 2002, and the registration inspections and external quality assessments for all blood cell counters in China have been conducted using the reference counter provided by Sysmex as a standard. In addition, Sysmex has been providing continuous support, such as technology transfer and exchange for hematology and reference measurement procedures, while also assisting in the creation of national clinical laboratory guidelines. Since 2019, it has leased the latest standard blood cell counters, contributing to improving the accuracy and standardization of hematology tests in China.



Survey Report Meeting in Mongolia

\* Analyzer with which to assign the values for the national standard of hematology (number of red blood cells and white blood cells)

#### ► Scientific Activities

## Public-Private Partnership Project with JICA

Sysmex Corporation conducted the Project for the Dissemination of Automated Urinalysis Diagnosis Technology between 2018 and 2022 as part of the Japan International Cooperation Agency (JICA) Collaboration Program with the Private Sector for Disseminating Japanese Technology for the Social and Economic Development of Developing Countries. We installed a fully automated urinalysis testing system in Ghana's national Komfo Anokye Teaching Hospital (KATH), and we organized seminars and symposiums that have been attended by 860 local healthcare professionals. This project was recognized as an effort toward the attainment of the Sustainable Development Goals (SDGs), and Sysmex was certified as a "JICA-SDGs Partner."\* We will remain committed to educating local healthcare professionals on the clinical value and effectiveness of automated urinalysis testing technology in our efforts toward high quality clinical testing in Ghana and other developing countries.

\* From August 2020 to February 2022



Presentation of JICA's collaboration program



Equipment installed at KATH

## Public-Private Partnership with Japanese Embassies Abroad

In 2022, Sysmex Corporation provided analyzers for hematology and urinalysis to local hospitals through the "Project For Provision of Medical Equipment and Ambulances In North Central Timor Regency, Nusa Tenggara Timur" as part of the "Grant Assistance Grass-roots Human Security Project."

Through these efforts, Sysmex works to improve the local medical environment and contributes to the provision of appropriate treatment opportunities for leprosy patients.

## Acceptance of JICA Trainees

Since 1994, Sysmex Corporation has worked with JICA in providing training to JICA trainees, in areas such as maintenance and management of analyzers and hospital management, aiming to improve healthcare workers' knowledge and skills. The number of trainees who visited Sysmex has exceeded 1,000.

## Participation in a Nationwide Screening Program for Colorectal Cancer

With the goal of improving people's quality of life, Sysmex Egypt participated in a nationwide screening program for colorectal cancer organized by the Egyptian Ministry of Health. Through sharing case studies from other countries and collaborating on screening programs, the company contributed to shaping a culture for colorectal cancer awareness and prevention in Egypt. Furthermore, through awareness-raising activities for patients and joint advertising, the company aims to encourage patients to reflect on their own health, contributing to improving the survival rate through the early detection and early treatment of the disease.

## Partnership

At present, establishing medical infrastructures in response to issues at each stage of economic development is a major task for developing countries, but their healthcare markets are expected to see growth in the future. As accurate test results are a starting point for proper healthcare, Sysmex has been building relationships with the health ministry and medical institutions in each country and region, as well as creating systems for promoting high-quality testing and establishing testing environments. It has also been making efforts to create new value by utilizing international cooperation and public-private partnership frameworks and collaborating with other companies.

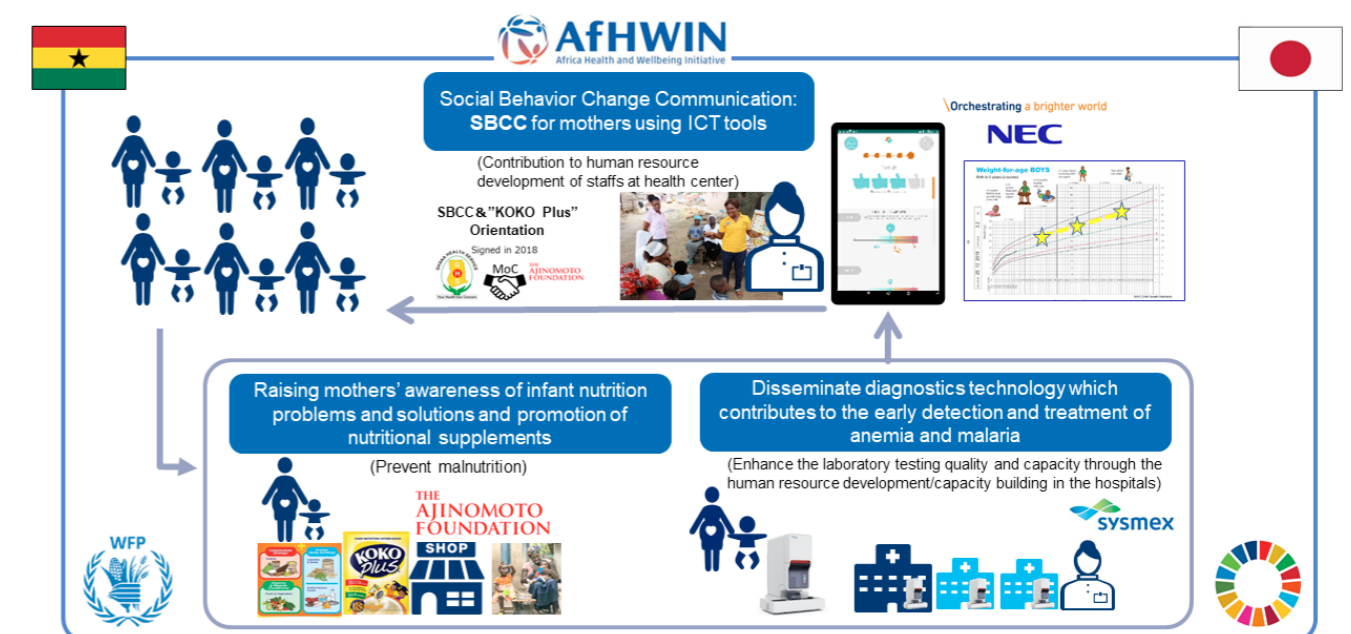
## Cross-Industry Collaborative Co-creation Project: Contributing to Universal Nutrition Health Coverage

In Ghana, serious healthcare problems include malnutrition - the greatest risk factor for death and disability - and malaria, which is the leading cause of death.<sup>1</sup> Malnutrition inhibits growth, delays the development of the body and brain in fetuses and infants, and causes anemia, increasing the severity risk for malaria. In addition, since the health of children under the age of five years and pregnant women is particularly impacted by malaria<sup>2</sup> an integrated approach for nutrition, anemia, and malaria is required.

Sysmex has initiated a co-creation project for improving the health and nutrition of mothers and children in Ghana in collaboration with the Ajinomoto Foundation and NEC Corporation. This project is based on existing activities of the Ajinomoto Foundation together with the Ghana Health Service, which includes behavior modification for mothers and the recommendation of nutritional supplements. By combining high-quality testing with ICT from Japan, we aim to create a system for improving the health and nutrition of mothers and children. Sysmex will be responsible for installing diagnostic instruments for malaria in medical institutions and personnel development and education activities for medical professionals.

\*1 The Institute for Health Metrics and Evaluation (IHME)  
<https://www.healthdata.org/ghana>

\*2 Children under five years old are particularly vulnerable to malaria and malnutrition. Malnourished children may develop more severe cases of malaria. Additionally, malaria increases the risk of poor outcomes for mothers and newborns, such as anemia and death in pregnant women, miscarriages, stillbirths, low-birthweight infants, and newborn and infant death.  
[Nutrition and Malaria: Integrated approach for effective case management](#)



## Initiatives of the Business Leader's Coalition for Global Health

Hisashi Ietsugu, Chairperson and Group CEO of Sysmex Corporation, participates in the Business Leader's Coalition for Global Health, a group of volunteers consisting of Japanese business leaders which aims to contribute to the global health\* area. In August 2022, 11 companies participating in the coalition announced "Global Health Actions" at an official side event of the 8th Tokyo International Conference on African Development (TICAD 8), with special guest Mr. Bill Gates. Sysmex made a presentation titled "Fighting malaria with diagnostics" and expressed its intention to aim for a malaria-free world. In March 2023, the Company also took the stage at the 2nd Global Health Academy to convey the significance of public-private-academic partnerships in the global health field.

In May 2024, this coalition requested Foreign Minister Kamikawa that the government position global health as a strategic area of diplomatic policy through collaboration with Global South countries. It also called for increased funding for international organizations such as Gavi, the alliance aiming to improve the global vaccine gap, as well as the resulting promotion of procurement expansion for Japanese companies' products and services.

\* Support and business development in healthcare globally, particularly in public health and measures against infectious diseases.



▶ [Related Websites: Business Leaders' Coalition for Global Health \(in Japanese\)](#)