PHILIPS

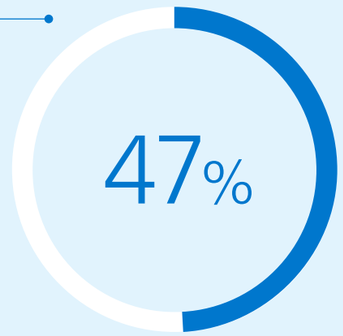
Oncology Informatics

Revealing timely, actionable insights for precision cancer care

innovation you

Cancer touches all our lives. Millions of people are currently living with cancer and the number of new cases is expected to rise by **47%** over the next two decades.[1]

A diagnosis can be devastating. On top of the physical and emotional burden, patients and their carers must navigate a time-consuming journey filled with tests, evaluations and consultations with multiple specialists across different specialties. This can be complicated and often leads to variations in care.



Cancer care is increasingly challenging for patients and care teams

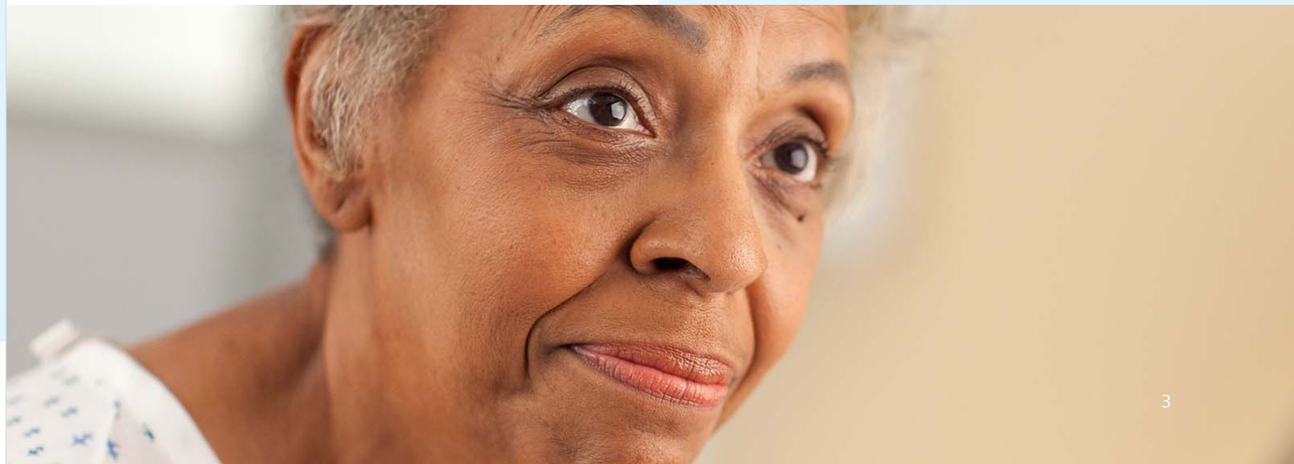
Cancer consists of many different diseases and affects every patient uniquely, making care complex too. The volume of patients, data, complicated tumor characterization, as well as expanding treatment and clinical trial options, can be overwhelming for care teams. There is limited time to care for the growing number of patients,[1] while also dealing with increasing amounts of data from across departments, disciplines and care providers, as well as staff shortages, which adds further complexity for clinicians.

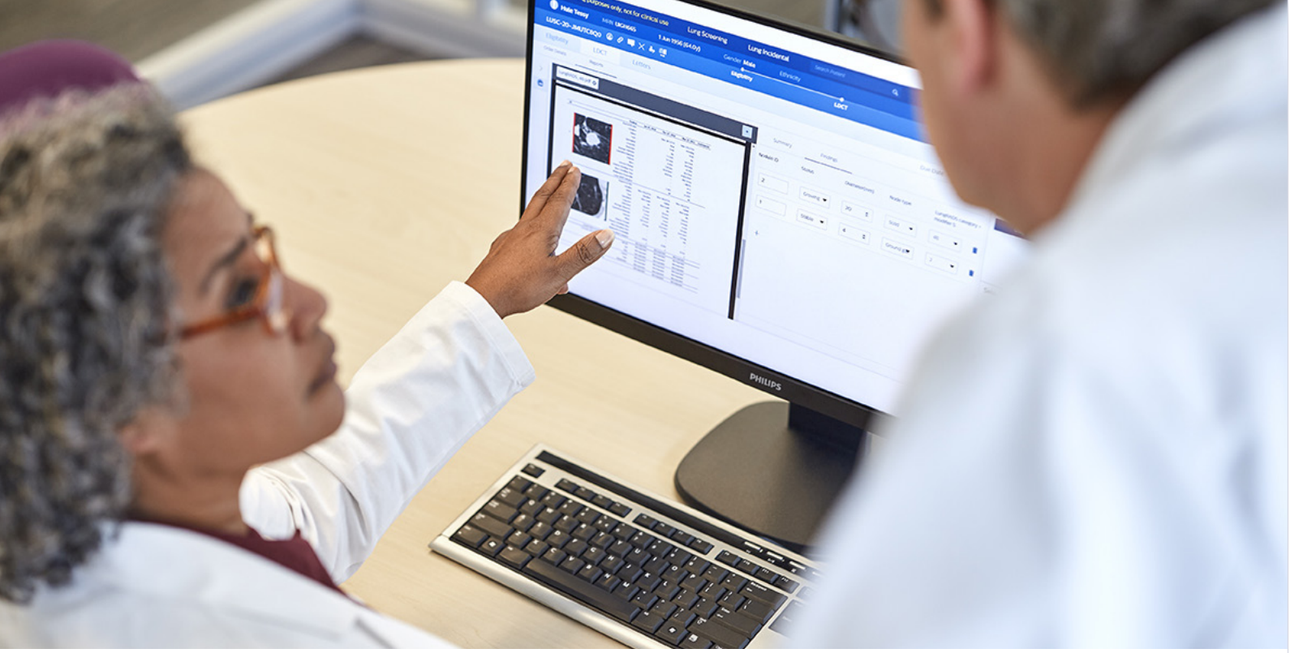
At Philips, we understand these challenges and are committed to shaping a world with better cancer care, reducing the burden of cancer for both care teams and patients.

Read on to find out how our Oncology Informatics innovations are leading the way in precision medicine, streamlining the cancer care journey for your patients and care teams, helping deliver efficient, consistent, high-quality personalized care, as well as a better experience for all involved.

"One solution to the serious and complex problem of information overload in oncology is to use advances in information technology to assist oncologists in their efforts to effectively and safely treat patients, such as by highlighting uncommon side effects."

Maurie Markman, MD,
Editor in chief of Oncology Net Guide and Vice president of clinical research for University of Texas, MD Anderson Cancer Center House, Texas.[2]





Bringing clarity to complexity

Getting the best possible outcome for each patient is at the forefront of every clinician's mind. They need actionable insights to ensure efficient, precise and confident decision-making, at every stage of their patient's care. Confident personalized decision-making in oncology, requires care teams to assess data from disparate systems, including imaging, pathology and EHR as well as scrutinizing the latest guidelines, clinical trial data and therapy advances.

Our oncology informatics solutions collectively tackle the major challenges in oncology. Our expertise and innovations build dedicated solutions bringing clarity to complexity, unifying and aligning workflows across the patient journey and benchmarking with clinical best practice. Data is generated, interpreted and integrated in the pivotal moments for efficient, personalized high-quality cancer care.

We are continually innovating with our clinical partners, delivering solutions that reveal the latest insights for precision cancer care, constantly simplifying decision-making at key moments and ensuring the best possible outcome for every patient.

Care teams are armed with the right information at the right time from connected workflows, integrating patient data from disparate systems;

- **Enabling early detection, precise diagnosis and accurate staging**
- **Empowering personalized clinical decisions with timely, actionable data**
- **Facilitating evidence-based, personalized treatment selection**
- **Making a difference for care teams and patients**

The power of a connected ecosystem

A complex pathway can lead to delays leaving patients with longer waiting times before a diagnosis or starting treatment, adding to their anxiety. Philips' Oncology Informatics aggregates, connects and streamlines all relevant patient data in one comprehensive view. Data becomes actionable insights, supporting oncology care teams to make informed decisions at all defining moments, improving efficiency, consistency and quality of cancer care.

Our secure cloud-based capability provides connectivity across oncology care, connecting devices, integrating electronic health data and storing data securely, so care teams also have the data-driven insights they need exactly when they are needed, to make informed decisions and optimize the care for each and every patient.

With interoperability capabilities that enable data sharing from radiology, digital pathology, and genomics with EMR and other systems, our platform collects, connects and interprets data streamlining clinical workflows and enabling better patient and clinician experiences. Privacy, security, and regulatory requirements can be managed on an ongoing basis via the platform's cloud hosting capabilities.

Secure cloud-based interoperability provides connectivity

HealthSuite Digital Platform

Responsible for security "in" the cloud

Platform: Interoperability, audit, identity and access management

Operating system, elastic search, network, and firewall configuration

SOC Type 1 and Type 2, ISO 27001/27018, HIPPA/HITRUST, CSA STAR Level 2 Certified

Philips HealthSuite

aws

Responsible for security "of" the cloud

Compute | Storage | Database | Networking

aws Global Infrastructure

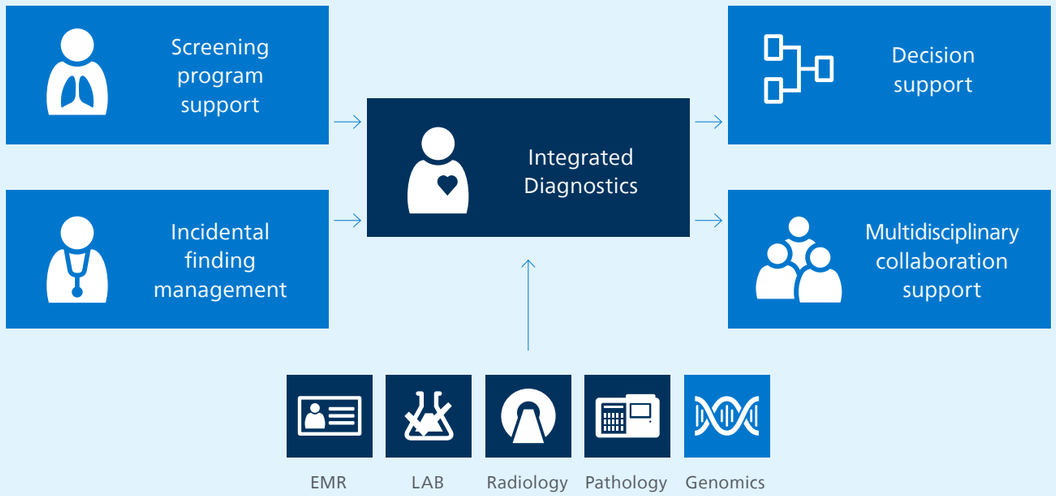
Modular applications to meet evolving needs
Our dedicated solutions for early detection of cancer, genomic insight generation, collaboration and decision support and evidence-based therapy selection, aim to help turn defining moments in healthcare into clear care pathways with predictable outcomes for every cancer patient.

Our modular applications allow for scalability and are designed to empower care teams with insights, streamline workflows, and assist them with clinical and operational analyses and decision-making across your entire healthcare network.

Expert content is curated in collaboration with tier-one oncology academic medical centers and leaders in cancer research like Dana-Farber (Oncology Pathways) and MD Anderson (Genomics Workspace) so care teams can be assured they always receive the most advanced clinical information.

Application modules can be added as your needs evolve; the infrastructure is already in place.

Infrastructure supports scalability and decision-making across your entire healthcare network



HealthSuite Precision Medicine Platform (incl. Oncology Analytics)
*Oncology Analytics**

*work in progress

Enabling early detection of cancer

Achieving a quick and accurate diagnosis is vital for patients and what every clinician strives for. Our innovative solutions ensure cancer screening programs and incidental findings management are more efficient and accurate, increasing earlier detection of cancer. The sooner a diagnosis is made, and the best treatment pathway determined, the more likely a better prognosis and outcome. It also minimizes the period of uncertainty for the patient.

We bring care teams together, streamline patient and workflow management in screening programs and help identify suspicious pulmonary findings in patients that might otherwise be overlooked to ensure the correct follow-up, reducing the number of false positive findings.

The **Lung Cancer Orchestrator** (LCO) provides a complete workflow solution from patient registration, validation and testing. The Lung Cancer Orchestrator drives early detection of lung cancer by supporting screening programs as well as incidental pulmonary nodule management. For screening program support, LCO integrates with advanced visualization workspaces (such as DynaCAD). LCO does the patient management and event scheduling. In the advanced visualization workspaces, lesions are identified, and shared with LCO. In LCO the optimal follow-up is then identified.

For incidental finding management, LCO applies NLP to 'scan' all radiology reports to search for certain key-words. In case of an incidental pulmonary finding, LCO matches the finding characteristics to the Fleischner criteria to determine the optimal follow-up.

By supporting screening as well as incidentals, LCO drives early detection of lung cancer, and makes sure no patient is 'left behind' or 'forgotten about'.

Integrating quality data and patient information, and making it accessible across disciplines and providers, removes siloes and empowers clinical teams with actionable insights they need to make decisions.

These solutions enable precise, guideline-based follow-up of incidental findings to deliver high-quality, personalized care. They help to enable cancer is detected early and avoid findings being missed, offering peace of mind for clinicians that all patients will be tracked along their care pathway and followed up correctly.

Empowering clinical decisions with timely, actionable data

We understand that care teams have limited time to care for the growing volume of patients and they also have increasing amounts of data and clinical information to assess. They need the right information at pivotal moments, to make evidence-based, personalized decisions, at every stage of their patient's care.

Our solutions generate data and connecting insights across systems and applications (like medical imaging, advanced visualization, image guided biopsy, digital pathology, and genomics, through secure, vendor neutral solutions, enabling a quicker, efficient, consistent, and data-driven diagnostic process.

Genomics Workspace brings together patient genomic data with disease histology, clinical phenotype, treatment options, and clinical trials (Oncology Pathways powered by Dana-Farber) for a comprehensive biomarker-informed view. These results are then integrated back into the Multidisciplinary Tumor Board and EMR.

It brings efficiency to workflow, from genomics report ingestion through tertiary analysis, including personalized therapy, clinical trial matching and treatment plan, molecular and multidisciplinary tumor boards and database searches.

Variant databases can be searched by different parameters, e.g., cancer type, histology, genomic variant, and others, to identify patients who may benefit from new therapies and clinical trials.

Improving multidisciplinary collaboration

Streamlining your clinical workflow by integrating EMR, lab, radiology, pathology and genomics information into one comprehensive oncology patient view facilitates multidisciplinary collaboration. All the information needed is available in one place for the whole team.

The **Multidisciplinary Team Orchestrator**, integrates all relevant data from across disparate systems into one comprehensive patient/tumor dashboard – accessible with 'one-click' on a single platform.

This enables a better patient experience and the best possible outcome for patients reducing the staff burden and lowering the costs of care.

"We want to have the right patient information available at the right time, so we can provide the best possible care in the most efficient way."

Dr. Olof Akre,
Professor of Urology & Head of the Prostate Cancer care flow, Karolinska Institute, Sweden

Facilitating evidence-based, personalized treatment selection

When the information for accurate diagnosis and staging has been obtained, analyzed, and connected, it is shared across the oncology care team to determine the next steps in the patient's care-pathway.

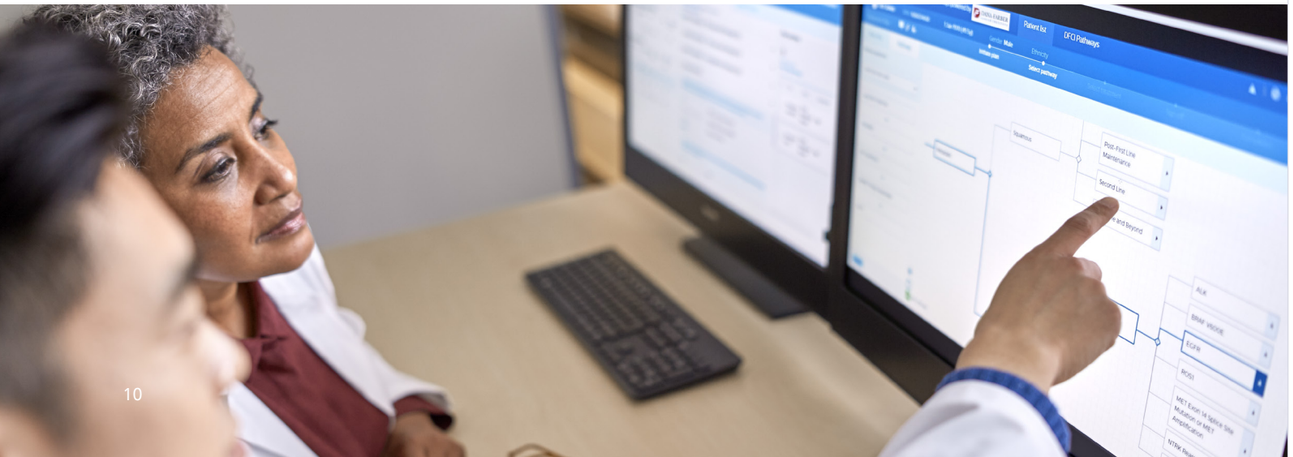
However, with hundreds of different cancers, a myriad of genetic mutations, continual advances in treatment and clinical trials, it is extremely challenging for care teams to be sure they have all the right information to choose the optimal therapy, in accordance with the latest evidence and clinical trial data. Preparing all the patient information from across specialties is also often manual and time-consuming. Perhaps it is not surprising that 1 in 4 oncology treatment plans do not comply with clinical guidelines, resulting in unwarranted variations, suboptimal outcomes and potentially higher costs of care.[3]

Oncology Pathways give care teams peace of mind, ensuring the relevant patient data from the LCO dashboard is matched to the latest therapy options, cancer care guidelines and evidence-based pathways including active clinical trials, adherence, and enrolment. As a result, all oncologists have visibility of the recommended pathways for each patient.

For oncologists, by oncologists
A community of medical specialists jointly define and continuously optimize patient care pathways. This way we can ensure pathway recommendations and timely, insightful, personalized data are always at every clinician's fingertip.

In partnership with Dana-Farber Cancer Institute, the solution provides doctors everywhere with access to first-class clinical oncology pathway options, bringing patients and providers together to choose the optimal path forward. Designed to support how oncologists think and make content curation rigorous, iterative, transparent, and credible.

Making data relevant, accessible, and actionable underpins all our solutions. We bring actionable information together from disparate data sources, across domains and providers, from Philips systems and from other vendors, including electronic medical records, lab systems, radiology, pathology and genomics, to provide the multi-disciplinary team with a comprehensive view of the patient.



Making a difference for care teams and patients

We know how complex navigating cancer care is for your patients and care teams. Our innovations bring clarity to complexity at every stage of the patient's journey to improve the experience and ensure the best possible outcomes, for every patient.

Our solutions enable generation, interpretation, and integration of the right insights at the right time, to provide consistent, precise, and personalized care, from early detection, accurate diagnosis and staging to assessment and follow up. It is only when data and all specialties involved in the care pathway have the information they need and work together in perfect harmony that efficient and optimal care can be realized.

Let's discuss your specific requirements and we can tailor planning, implementation, and training to assure staff proficiency.

Working together, we can change what's possible for your patients and staff and help improve cancer care for all.

1. Sung H, et al. . Global Cancer Statistics 2020: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries. CA Cancer J Clin. 2021 May;71(3):209-249. doi: 10.3322/caac.21660. Epub 2021 Feb 4. PMID: 33538338
2. Information Overload in Oncology: A Critical Role for Innovative Information Technology (hcplive.com)
3. Forastiere AA, Flood WA, Yedwab E et al. (2013). The costs per patient of deviations from evidence-based standards of oncology care. Journal of clinical oncology 31 (15) suppl. 6515

Oncology Pathways, Multidisciplinary Team Orchestrator, Lung Cancer Orchestrator and Genomics Workspace are not intended for diagnosis use or treatment selection and considered as a non medical device.

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