





A close-up, shallow depth-of-field photograph of a microscope's objective lens and stage. The lens is metallic and cylindrical, with a yellow ring near the bottom. The stage is white and slightly out of focus. The background is a mix of blue and white geometric shapes.

# Improving outcomes for cancer patients by standardising pathology reporting

[iccr-cancer.org](http://iccr-cancer.org)



# Who We Are

The International Collaboration on Cancer Reporting (ICCR) produces common, internationally validated and evidence-based pathology datasets for cancer reporting throughout the world.

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The availability of internationally standardized, multilingual, and machine-readable pathology reports documenting cancer type, grade, stage, and other morphologic and molecular parameters is necessary to improve care for cancer patients and to advance cancer control in populations.

We achieve this by way of broad international collaboration between Pathology Colleges, Societies, and major cancer organisations to reach consensus on best practice in personalized medicine. This is a pre-requisite for epidemiological research and benchmarking in cancer management both nationally and internationally.

The ICCR began in 2011, as a collaboration among the Royal Colleges of Pathologists of Australasia (RCPA) and the United Kingdom (RCPath), the College of American Pathologists (CAP) and the Canadian Association of Pathologists-Association Canadienne des Pathologistes (CAP-ACP), in association with the Canadian Partnership Against Cancer (CPAC). Following on from the success of a pilot project to standardize datasets, the ICCR was joined by the European Society of Pathology (ESP) in 2013. The ICCR became a not-for-profit organisation in 2014 to support membership expansion and continued development efforts in the creation and implementation of datasets.





# Goals and Objectives

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## Development of cancer pathology datasets

Cancer patient outcomes are positively impacted by the ability of the medical team to build treatment and management options on accurate and complete information within the patients' pathology reports.

Developing complete, evidence-based cancer datasets containing essential and current reporting information for a given cancer provides the foundation for improved cancer staging and optimisation of treatment.

The ICCR now has over fifty cancer datasets available for download.

## Translation of datasets into multiple languages

Translating the ICCR datasets into numerous languages is essential to facilitate the implementation of standardised cancer reporting worldwide.

In particular, the ICCR is focused on bridging equity access to support pathologists practicing in Low and Middle-Income Countries (LMICs) to effectively communicate complete cancer pathology results to associated clinicians, cancer registrars and other secondary users, thus ultimately benefiting cancer patients globally.

## Implementation of ICCR datasets

Implementation of the ICCR datasets is crucial to their progression, integration and utilisation worldwide.

This will involve investigating structured reporting tools for LMICs, developing electronic versions of the ICCR Datasets for upload into Laboratory Information Systems (LIS), development of terminology to support analysis and comparison of data, quality assurance, oversight of implementation projects, and improving cancer registry interface standards.

## Education

In 2019 the International Association of Cancer Registries (IARC) endorsed the ICCR Datasets as the international standard for cancer pathology reporting.

ICCR datasets have enormous educational value for pathologists, oncologists, and other related medical professionals for training and professional development, as well as providing pathologists in developing parts of the world with a benchmark and, therefore, a 'ladder' for progression and advancement in cancer reporting as their capability improves.

The ICCR aims to facilitate educational events such as Webinars for professional development, University and College lectures, outreach sessions, and conference presentations.



# ICCR Members



## The Royal College of Pathologists of Australasia (RCPA)

The RCPA is the leading organisation representing Pathologists and Senior Scientists in Australasia. Its mission is to train and support pathologists and to improve the use of pathology testing to achieve better healthcare.



## The Royal College of Pathologists UK

The Royal College of Pathologists is a professional membership organisation with more than 11,000 fellows, affiliates and trainees, of which 23% are based outside of the UK. We are committed to setting and maintaining professional standards and promoting excellence in the teaching and practice of pathology, for the benefit of patients.



## The College of American Pathologists (CAP)

The College of American Pathologists (CAP), the leading organization of board-certified pathologists, serves patients, pathologists, and the public by fostering and advocating excellence in the practice of pathology and laboratory medicine worldwide.



## The Canadian Association of Pathologists (CAP-ACP) in association with the Canadian Partnership Against Cancer (CPAC)

The Canadian Association of Pathologists (Association canadienne des pathologistes), a voluntary professional organization, advances the interests of the pathology profession and promotes high quality standards for patient care by providing national leadership and promoting excellence in pathology and laboratory medicine practice, education and research. It plays an important role in promoting pathology to the national and international health care communities and to Canadian society.

The Canadian Partnership Against Cancer is an independent organization funded by the federal government to accelerate action on cancer control for all Canadians.



## The European Society of Pathology (ESP)

The European Society of Pathology is the leading force in European pathology. The primary aim of ESP is to promote:

- High quality diagnostic practice
- Applied and translational research
- Under- and postgraduate education in the field of human pathology.



## Who We Are | ICCR Members



### The American Society for Clinical Pathology (ASCP)

The American Society for Clinical Pathology unites more than 100,000 anatomic and clinical pathologists, medical laboratory professionals, residents and students to accelerate the advancement of laboratory medicine to improve patient care through knowledge, collaboration, and global community.



### The Royal College of Physicians of Ireland, Faculty of Pathology (RCPI FoP)

The Royal College of Physicians of Ireland, Faculty of Pathology is the national professional and training body for Pathology in Ireland, working to ensure the highest standards in laboratory medicine.



### The German Society of Pathology (DGP)

The German Society of Pathology was founded in 1897 to advance pathology involvement in research and to fight disease. The society organises conferences and provides information on the latest findings from theory and practice of pathology.



### The Brazilian Society of Pathology (SBP)

The Brazilian Society of Pathology was founded with the aim to promote the union of specialists in pathology, through technical and scientific improvement and alignment among pathologists.



### The Hong Kong College of Pathologists

The Hong Kong College of Pathologists acts as a body for the purpose of consultation in matters of educational or public interest concerning pathology, oversees the training and accreditation of pathologists in Hong Kong and is responsible for setting standards and monitoring pathology training.



### The Austrian Society of Pathology/ IAP Austrian Division (ASP)

The Austrian Society of Pathology and Austrian Division of the International Academy of Pathology (ÖGPath/IAP Austria) promotes quality management, quality assurance, science and further education and training in Pathology.



The Japanese Society of Pathology  
一般社団法人 日本病理学会

### The Japanese Society of Pathology

The Japanese Society of Pathology's mission is to improve medical science, medical practice and human welfare, through promotion of scientific and medical aspects of pathology. JSP manages and certifies in anatomic pathology and promotes quality management, further education and training in Pathology after the certification process.



### Italian Society of Pathological Anatomy and Cytology (SIAPEC)

SIAPEC promotes the advancement of knowledge and the development of diagnostic technologies in the field of anatomy, pathological histology and diagnostic cytology, through the development of guidelines and scientific and professional education. It promotes the regional and national coordination and development of operational units of histology and cytopathology across Italy.

Members at the time of publication.





### French Society of Pathology (SFP)

The SFP brings together pathologists from across France to promote pathological anatomy and cytology in all its aspects. Its mission is the continuous training of pathologists, the promotion of pathology and cytology in the development of medical research, and relationships with pathology societies of other countries.



### Chinese Society of Pathology

The Chinese Society of Pathology (CSP) is the leading pathology society in China, devoting itself to advancing and developing pathology research. CSP's mission is to lead Chinese pathologists to create, use and popularize the scientific methods and technologies to study the cause of diseases, pathogenesis, and changes in morphology, function, and metabolism caused by diseases.



### Swiss Society of Pathology

The Swiss Society of Pathology (SGPath) belongs to the Association of Swiss Doctors FMH and comprises the Swiss division of the International Academy of Pathology (IAP). The Society and its specialist groups are dedicated to the promotion of pathology, advancement of training and teaching, and collaboration with national and international associations of pathology.



BUNDESVERBAND  
DEUTSCHER  
PATHOLOGEN e.V.

### German professional association of pathologists BDP Bundesverband Deutscher Pathologen e.V.

The Federal Association of German Pathologists (Bundesverband Deutscher Pathologen e.V. – BDP) is the professional representative of pathology. The BDP views the field of pathology as a core area of medicine, representing a diagnostic cross-sectional field with indirect influence on other specialist areas in patient care, thus promoting interdisciplinarity within medical practice, an essential structural element of quality.



### International Academy of Pathology – Arab division

The International Academy of Pathology Arab Division aims to advance pathology in all aspects, including promoting communication between pathologists in the Arab region and pathologists worldwide, coordination with allied sciences, encouragement of pathology research, teaching and education, and exchanging of scientific information and ideas.



# What We Do

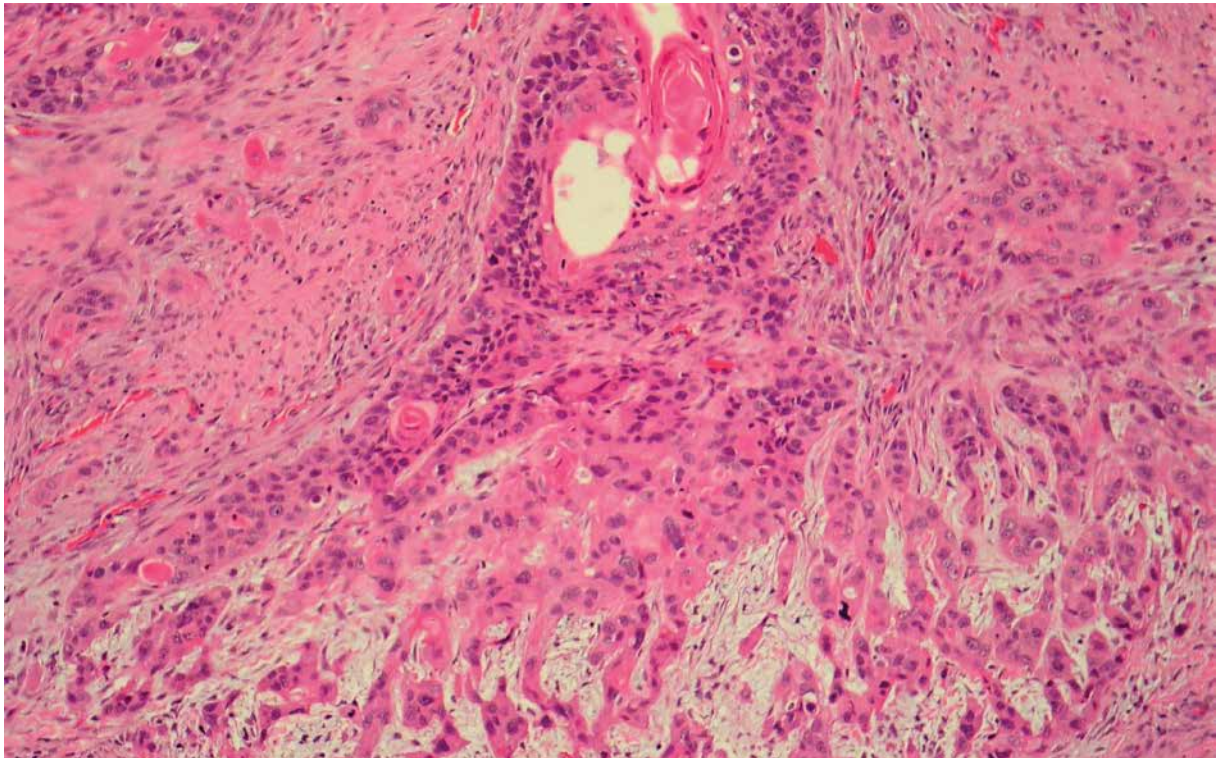
The overall cancer diagnostic dataset is used to determine which treatment should be used in the individual patient and to predict responsiveness to individual therapies (“personalized medicine”) and provide an overall prognosis.

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The ICCR was established with a view to reducing the global burden of cancer dataset development and duplication of effort.

To achieve this, the ICCR produces internationally standardized pathology datasets incorporating contemporary morphologic and molecular parameters which are translated into multiple languages and are available in machine readable formats. The datasets are used to improve the quality of care for cancer patients and to facilitate population-level cancer control initiatives including cancer registration, quality research, resource planning and education.

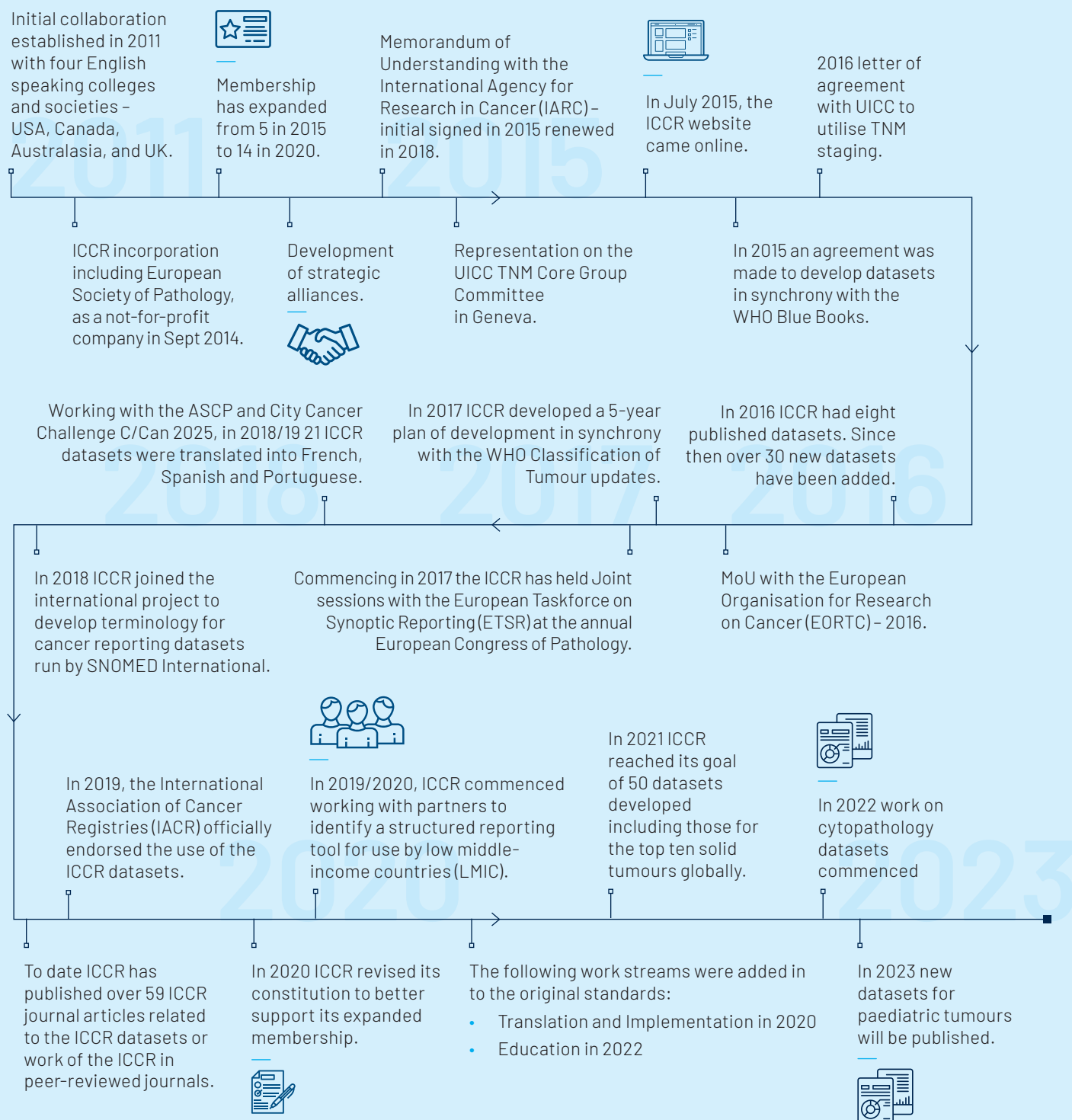
The first dataset writing groups, comprising many world-leading experts in their fields, produced internationally agreed cancer evidence-based datasets for lung, melanoma, prostate, and endometrial carcinoma. By using different processes for collaboration in each of the original expert groups, the ICCR was able to optimise the method for future international dataset development.



Cancer of the larynx showing invasion



## Timeline





# Why It Matters

The ICCR recognised that a coordinated effort on cancer pathology reporting would offer synergies and have far reaching benefits for those involved as well as for those countries that are not able to develop their own datasets.

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The development of a single internationally agreed dataset for each cancer type has the following benefits:

- Dataset production by a single organisation minimises the effort of cancer pathology dataset development in different jurisdictions. Producing datasets is a significant burden upon each country and creates risks for interoperability and international comparison.
- In developing a single international standard, it becomes possible to engage the best international expertise and ensure that there is a common meaning and definition for all data elements with consistent application of value lists.
- The creation of a single, defined, evidence-based dataset for each cancer simplifies, and reduces the costs of electronic implementation by standardising laboratory information system data structures, terminology bindings and electronic messaging.
- Development of a single agency with high level input and good governance can facilitate timely revision and adoption of contemporary best practices in the light of ever more rapidly emerging predictive biomarkers.
- Datasets created with international governance will be available to developing countries that have insufficient resources to develop their own.
- Internationally derived datasets carry the authority to encourage uniform uptake of a single standard across the world, essential for international data comparison and benchmarking.
- The development of evidence-based datasets containing all the important and most recent reporting information for any given cancer not only leads to more complete pathology cancer reports, but also provide an important educational tool for pathologists to maintain currency, as well as providing pathologists in developing parts of the world with a benchmark and therefore a 'ladder' for progression and advancement in cancer reporting as their capability improves.

ICCR datasets provide the single best way for the existing dataset producers to synchronise and align their efforts.

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# What We Need

We seek the support of partners and sponsors to:

- Develop and maintain internationally harmonized cancer pathology datasets and reporting guides incorporating contemporary morphologic and molecular standards from partner organizations including IARC (WHO), UICC/TNM and specialty groups.
- Translate datasets into multiple languages to facilitate adoption of the reporting standards in both highly developed and low- and middle-income countries (LMIC).
- Transform the dataset standards into an electronic (machine readable) format to facilitate transmission, analysis, and comparison of data.



# Our Partners and Sponsors

The ICCR recognises the value that other key international cancer and pathology related organisations can contribute to our goals and has therefore benefited from relationships with the following organisations.

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## **International Agency for Research on Cancer (IARC)/World Health Organization (WHO)**

The International Agency for Research on Cancer (IARC) is the specialized cancer agency of the World Health Organization (WHO). Its mission is to co-ordinate and conduct cancer research. IARC has the objectives of promoting international collaborative research on cancer, in order to provide a scientific basis for the adoption of effective strategies for cancer prevention and control. A key activity of IARC is the development and publication of the World Health Organization Classification of Tumours series ('WHO Blue Books') that are a vital resource for worldwide pathology reporting of cancer.

The identification and classification of tumour types based on the WHO Classification of Tumours is essential to the pathology reporting of cancer and is a feature of all ICCR datasets. Its importance to ICCR datasets is reflected in the ICCR development schedule which is synchronized with the WHO Classification of Tumours production schedule. IARC and ICCR have bilateral representation on their Steering committees, as well as an agreement on the cooperative utilization of international cancer pathology expertise.

## **The International Association of Cancer Registries (IACR)**

IACR was founded in 1966, as a professional society dedicated to fostering the aims and activities of cancer registries worldwide. It is primarily for population-based registries, which collect information on the occurrence and outcome of cancer in defined population groups (usually the inhabitants of a city, region, or country). For each new cancer case, registries record details of the individual affected, the nature of the cancer, information on treatment, and on follow-up specially with respect to survival from the disease.

In October 2019, the IACR endorsed the use of the ICCR pathology datasets for cancer reporting. This followed a period of consultation with its membership and Board of Directors.

## **The Union for International Cancer Control (UICC)**

UICC unites and supports the cancer community to reduce the global cancer burden, to promote greater equity, and to ensure that cancer control continues to be a priority in the world health and development agenda.

## **International Society of Gynaecological Pathology (ISGYP)**

ISGYP is a worldwide community of pathologists and other physicians with a common interest in the pathology of the female reproductive system. The Society was founded in 1976 to facilitate exchange of knowledge about gynaecological disease and to be a forum for dissemination of new information in this area.

## **International Society of Urological Pathology (ISUP)**

ISUP was founded in 1992. It conducts a scientific meeting annually as part of the United States, Canadian Academy of Pathology at which over 500 delegates may attend and it regularly convenes companion meetings at the Congress of the International Academy of Pathology and the European Society of Pathology. The ISUP has a long history of developing best practice guidelines in uropathology.

## **African Strategies for Advancing Pathology (ASAP)**

In 2014, twenty-seven professionals with a common interest in increasing the improving access to diagnostic pathology and laboratory medicine in sub-



Saharan Africa (SSA) formed ASAP. This organisation is composed of individuals with expertise and interest in histopathology, cytopathology, medical microbiology, infectious disease pathology, information management, public health advocacy and policy, health systems, laboratory management, and process improvement. Their common goal is to increase and improve access to diagnostic pathology and laboratory services in low and middle-income countries (LMICs).

### **European Organisation for the Research and Treatment of Cancer (EORTC)**

EORTC unites cancer clinical research experts to define better treatments for cancer patients to prolong survival and improve quality of life. Both international and multidisciplinary, EORTC's Network comprises over 4,600 collaborators involved in cancer treatment and research in more than 800 hospitals across 35 countries.

Through translational and clinical research, EORTC offers an integrated approach to therapeutic strategies, drug evaluation programs, survivorship issues, and quality of life.

### **Massachusetts General Hospital Pathology Service**

The Massachusetts General Hospital Pathology Service, a comprehensive academic pathology department, delivers subspecialty clinical services, hosts robust training and education programs, and performs cutting-edge research.

### **The American Academy of Oral and Maxillofacial Pathology (AAOMP)**

The goal of the AAOMP is to identify, manage diseases affecting the oral and maxillofacial regions and investigate the causes, processes and effects of these diseases.

### **The North American Society of Head and Neck Pathology (NASHNP)**

NASHNP was founded in 1997 as a non-profit organisation to promote, exchange and disseminate information about the anatomy, physiology, pathology and basic science and clinical management of diseases involving the head and neck.

### **The British Society for Oral and Maxillofacial Pathology (BSOMP)**

BSOMP was founded over fifty years ago and promotes research into and histopathological diagnosis of diseases affecting the oral and maxillofacial complex and other regions of the head and neck. It has members from across the UK as well as overseas.

### **The Royal College of Pathologists of Australasia – Quality Assurance Programs Pty Ltd (RCPAQAP)**

RCPAQAP provides resources, product, services, data and insights for assessing the diagnostic and technical proficiency of laboratories in each discipline of Pathology and for the purposes of supporting patient safety, continuing medical education and research. Quality assurance programs began in 1968 in Chemical Pathology, Haematology, Blood Bank, Microbiology and Anatomical Pathology. These discipline-specific programs were originally offered by independent organisations that became increasingly large and complex. They flourished well into the 1980s, until in 1988, RCPAQAP a company independent from but aligned with the Royal College of Pathologists of Australasia, was created.

The company's goal is to continue as the world leader in external quality assurance (EQA), delivering superior EQA programs to advance outcomes in patient care, and promote excellence in laboratory output.

### **International Association of Oral and Maxillofacial Pathologists (IAOP)**

IAOP was established in 1976. Its primary objectives are the development and promotion of the practice and science of oral pathology, the advancement of under and postgraduate education, and to further the knowledge of clinical aspects, laboratory diagnosis and applied and translational research in the speciality field of oral pathology.

### **Singapore General Hospital (SGH)**

SGH is a not-for-profit institution providing affordable specialist care for patients and training for doctors and other healthcare professionals. SGH seeks to bring its patients new and better care and therapies through research.

### **International Society of Breast Pathology (ISBP)**

ISBP is a professional organisation whose purpose is to encourage communication and exchange of new knowledge, develop strategies to better understand the biology of breast disease, promote standardisation of diagnostic and prognostic criteria, provide leadership in breast cancer research and education, foster an improvement of training programs in breast pathology and to encourage professional advancement of the members.



# The Role of the Pathologist

The initial diagnosis of cancer usually involves a pathologist looking down a microscope to assess a biopsy or cell sample and making observations on the appearance (morphology) of the tumour and other characteristics that may be identified using supplementary techniques such as immunohistochemistry and molecular pathology.

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From these observations a pathology report is generated describing the characteristics of the cancer including precise type (based on the WHO classification), grade (how bad), extent (how much) and other morphological and molecular features. The latter may include biomarker status, for instance the presence of estrogen and progesterone receptors and Her2 status in breast cancer. In addition to biopsies, pathologists examine the specimens obtained when a patient has cancer surgery. In a similar way to biopsies, the pathologist must examine the specimen and determine the characteristics of the cancer including the size and extent of spread (stage) and whether the cancer has been totally removed (margin status).

Pathology reports are becoming increasingly complex as additional parameters are requested by oncologists to guide patient care. The completeness of cancer reports can be improved by using a standardized reporting template to produce the pathology dataset. In research (including clinical trials where new cancer therapies are being assessed) it is particularly important to have complete and unambiguous pathology datasets to compare results and determine if the new therapy provides additional or improved benefits. Cancer registries use pathology datasets to look at cancer incidence and mortality in relation to pathology factors such as tumour type, grade, stage, and biomarker status. These data can be used in quality assurance and epidemiology research, and population-level planning activities for cancer systems.

## The pathology dataset

- Is foundational for cancer care.
- Includes the internationally agreed and scientifically validated parameters that must or should be included in each cancer pathology report.
- When linked to a reporting guide can provide an important educational resource to pathologists, oncologist and other involved in the cancer system.
- Is important when looking at new applications for artificial intelligence (AI) in cancer medicine.
- Is a major component of the overall diagnostic dataset which also includes medical imaging, laboratory results and clinical findings. The overall cancer diagnostic dataset is used to determine which treatment should be used in the individual patient and to predict responsiveness to individual therapies such as novel immunotherapy ("personalized medicine") and provide an overall prognosis.









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