Annual Report
2018-2019

api
PATHOLOGY
INFORMATICS

Annual Report
(Fiscal Year July 1, 2018–June 30, 2019)

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PATHOLOGY
INFORMATICS

Dear Members and Colleagues:

On behalf of the Governing Council of the Association for Pathology Informatics (API), I am pleased to provide the President's letter for this API Annual Report.

Formed in 2000, the API is dedicated to the specialty of Pathology Informatics with a mission to promote the field of Pathology Informatics as an academic and clinical subspecialty of Pathology and Laboratory Medicine and further substantiate pathology's relevance into the future as the most critical component for precision patient care.

This year represents our eleventh year as a separately chartered and fully independent professional association. We continue to make considerable progress in advancing Pathology Informatics as a valued and respected subspecialty of Pathology. Below are some highlights of the past year.

Pathology Informatics Summit 2019: The Pathology Informatics Summit in (May 6-9, 2019, Pittsburgh, PA) was a resounding success. With over 289 attendees, 48 faculty presenters, and 21 vendor/exhibitors, the energy was high and the connections and interactions significant. Multiple in-depth workshops covered Foundational Topics in Pathology and Clinical Laboratory Informatics, R Language Primer and Programming Symposium on Data Sciences, and HIMA Imaging Science.
- The Summit also included academic sessions, 42 posters, 30 short abstract presentations, and 6 elevated platform sessions.
- The Digital Pathology Association Companion Meeting covered Hot Topics in Digital Pathology, with themes on Artificial Intelligence, Computational Pathology, and Applied Machine Learning.
- Advanced Microscopic Imaging, Machine Learning, Interoperability, and Contemporary Regulatory, Ethical and Developmental Topics in Pathology Informatics sessions were available to attendees.
- Funding was available for 17 travel awards; our heartfelt thanks go to Dr. Edward Klatt, Dr. Keith Kaplan, LifePoint Informatics, General Data, and the College of American Pathologists for their generous support.

Digital Pathology and AI Workshop 2.0: API's annual Digital Pathology and AI Workshop 2.0 was held on December 7-8, 2018 at the James Cancer Hospital and Solove Research Institute at the Ohio State University campus; 82 attendees and 8 vendors were present. This workshop was the second in a planned continuing series of hospital-based, practical workshops focused on digital pathology. Short, didactic lectures by national experts were punctuated by round-table discussions including vendor representatives. Topics covered included: the development of RFPs for the digital pathology equipment, improving surgical pathology workflow on the basis of LEAN principles, and integration of the new technology with current LISs and automated equipment.

API/Sunquest Educational Webinars: We are grateful to Dr. Bruce Frieden for his vision and leadership in designing the API and Sunquest webinars, which are free from commercial interests and are available to API members. On February 26, 2019, experts discussed pathology informatics and driving factors in laboratory efficiency and effectiveness in large multi-hospital systems, focusing on ways to improve workflow, reduce costs and improve outcomes, while delivering value-based care for hospital organizations. On March 26, 2019, the API/Sunquest webinars focused on ways to encourage innovation in the clinical and pathology laboratories, including the support for quality laboratory reporting throughout a large health system environment.

Journal of Pathology Informatics (JPI: www.jpathinformatics.com): Now in its ninth year, JPI continues to be a major player in shaping our field. We are deeply indebted to the outstanding efforts of founding and current Editors-in-Chief Anil V. Parwani, MD, Ph.D and Liron Pantanowitz, MD for providing us with this peer-reviewed, open-access, PubMed-indexed resource. The most viewed article topics this year included:

- IT tools for pathology education;
- NextGen sequencing;
- Image analysis;
- PHI in labs; and
- Deep learning/machine learning.

Manuscript submissions were evenly split between authors in the United States (56%) and internationally (44%). Fifty issues were published in 2018.

Teaching Program Memberships: The API Teaching Institutional Members continue to make significant contributions to both the success of API and to the success of the Pathology Informatics Summit. A significant number of institutional trainees attended various workshops along with many prominent and active pathology department faculty. We are committed to expanding the number of teaching institution programs as we move forward.

Presence of API in National Initiatives: The API was represented at numerous national conferences in 2018-2019:

- Nineteen hours of API-branded content was delivered at the annual American Society for Clinical Pathology (ASCP) meeting.
- API was pleased to convene a Joint Meeting of API, American College of Radiology and the College of American Pathologists to discuss synergies in integrated reporting and governmental regulatory topics during the API Summit.
- API content was presented at the annual meetings of both the College of American Pathologists (CAP) and the Association for Molecular Pathology (AMP).
- API participated as a Companion Society of the United States and Canadian Academy of Pathology (USCAP) at the USCAP annual meeting in March 2019.
- API-branded content as delivered to the Digital Pathology Association *Pathology Visions* meeting and at the AACC University Pathology Informatics Boot Camp.

Special mention and thanks are due the staff at API without whom so much less would be possible. Executive Director Nova Smith continues to be the cornerstone of API operations, assuming such responsibilities as Conference Manager, Membership Coordinator, and JPI Managing Editor. Thanks, too, to Beth Gibson of the University of Michigan who serves as Assistant Conference Manager and Webmaster Rebecca Boes.

I am grateful for and to our 600 active API members, 29 Teaching Institutional and Non-profit members. Special thanks go to the members of the API Governing Council, each of whom has dedicated innumerable hours and tremendous effort to the advancement and betterment of this organization.

Pathology Informatics is critically important for accurate, efficient, and improved patient care. It is the key to the discipline of Pathology and all pathology subspecialties. The continued success of the Association of Pathology Informatics is critical for our specialty, for the vitality of the house of medicine and for the health of our patients.

It has been my honor to serve as President of this wonderful organization. My heartfelt thanks for your having entrusted me to this office.

Sincerely,

Monica E. de Baca, MD
API President 2019

History: API was founded in 2000 by pathologists interested in defining Pathology Informatics (PI) as a clinical subspecialty within the medical discipline of Pathology. API was initially supported by the Department of Biomedical Informatics and the University of Pittsburgh School of Medicine until API became financially independent. The University of Michigan currently provides additional administrative support for API.

Mission: Promote the field of Pathology Informatics as an academic and a clinical subspecialty of Pathology and Laboratory Medicine and further substantiate pathology's relevance into the future as the most critical component for precision patient care.

What is Pathology Informatics? Pathology Informatics recognizes the disruptive role of new technologies and strives to facilitate adoption of information-driven diagnostic tools that deliver better patient care and enhance our understanding of disease-related processes. Such new diagnostic technologies include whole slide imaging (WSI), next-generation sequencing (NGS), and emerging technologies like methylation assays and proteomics. Such technologies have resulted in what is commonly termed "big data" and require specialized techniques for implementation, management, and analytics. In addition, PI works to refine the data generated by diagnostic technologies currently used in clinical laboratories and from reporting performed from anatomic pathology laboratories. Through these efforts, PI positions itself as the data stewards for pathology, and having stewardship over critical diagnostic pathology data substantiates pathology's relevance for enhancing patient care.

Goals:
- Advance Pathology Informatics through research, scientific meetings, and electronic and printed communications
- Provide educational activities that disseminate knowledge to a broad audience and support the practice of Pathology Informatics
- Support "democratization" of diagnostic pathology data by eliminating or integrating data silos that hinder multi-institutional sharing of data and impede better public health, patient care, and research
- Develop standards for the storage and exchange of data and mechanisms for reporting, transferring, and merging diagnostic data while maintaining the needed level of confidentiality and appropriate stewardship of the data
- Play an active role in legal, ethical, social, regulatory, and governmental issues related to Pathology Informatics
- Prepare Pathology for upcoming paradigm shifts in practice like primary digital sign-out and incorporation of artificial intelligence
- Define the technological barriers that current technologies have in accommodating the upcoming technological paradigm practice changes, using a systems-based approach
- Develop relationships with other professional societies and industry partners that share similar interests and goals and synergize efforts to achieving the above listed goals
- Continue our efforts to recruit women and minorities from the international pathology informatics community as API members, to serve on API committees and the JPI editorial board, and as invited speakers for our national meeting and educational workshops

Activities: Informaticians seek to continuously improve laboratory information technology/systems, enhance the value of laboratory test data, and develop computational algorithms and models aimed at deriving clinical value from new data sources. We offer a broad array of expertise in the primary informatics pillars of:
- Information fundamentals
- Information systems
- Workflow and process
- Governance and management
- We support clinical laboratory operations, enterprise informatics and IT initiatives, academic research, and education

With over 40 years of combined experience in the running of both the APIII and Lab Infotech Summit meetings, the current conference organizing committee deeply understands the field of Pathology Informatics and the contemporary issues in our specialty that demand coverage. This year's conference builds on the strong legacy of past Summits, with some new features worth calling out. Continuing with the tradition of hosting pre-conference activities, this year's meeting offers four exciting sequences: 1) Foundational Topics in Pathology and Clinical Laboratory Informatics, 2) The HIMA Imaging Science Workshop, and an entirely new workshop & practicum offered as an 3) R Language Primer and Programming Symposium on Data Sciences. This latter offering has been designed from the ground up to address the growing demand for the attainment of competency in use of R among laboratorians and pathology informaticists and we anticipate that it will become a staple event for future meetings. The fourth and final sequence, which is being offered as a Monday evening session, is the Digital Pathology Association's Companion Meeting, entitled Hot Topics in Digital Pathology.

There were 42 posters, 30 short abstract presentations, 6 were elevated to talks. Attendees could also claim 13 hours of CME/SAMS credit.

Special thanks to our Platinum Level Vendors: Hamatasu Corporation and Roche Diagnostics, as well as our Gold Level Vendor: Leica Biosystems.

May 6:
Foundational Topics in Pathology and Clinical Laboratory Informatics
HIMA Imagine Science
R Language Primer and Programming Symposium on Data Sciences
Digital Pathology Association Companion Meeting – Hot Topics in Digital Pathology
May 7:
Timely Topics: Update on Digital Pathology, Advanced Microscopic Imaging, Machine Learning, & Interoperability
Short Abstract Presentations: Applied Informatics: LIS Topics Applied Informatics – New Technologies and Techniques Selected Platform Lectures
May 8:
Pathology Informatics' Intersection with Precision Medicine: Present & Future State
May 9:
Contemporary, Regulatory, Ethical & Developmental Topics in Pathology Informatics

Trainee Awardees

Simone Arvisais-Anhalt, MD
University of Texas Southwestern Medical Center

Swikrity Baskota, MD
University of Pittsburgh Medical Center

Paul Christensen, MD
Houston Methodist Hospital

Jae-Hoon Chung, MD/PhD (student)
The Ohio State University College of Medicine

Khalda Ibrahim, MD
University of Louisville

Shohei Ikoma, MD
UCLA

Jennifer Jakubowski
Drexel University

Iny Jhun, PhD (student)
Harvard Medical School

Hansen Lam, MD
Icahn School of Medicine Mount

Sinai Rufei, Lu, MD, Phd
University of Oklahoma College of Medicine

Emilio Madrigal, DO
Massachusetts General Hospital

Mousumi Roy, PhD candidate
Stony Brook University

Hossain Shakhawat, MS, PhD
Memorial Sloan Kettering Cancer Center

Lauren Skvarca, MD, PhD
University of Pittsburgh Medical Center

Aryeh Stock, MD
Icahn School of Medicine Mount

Sinai Rami, Vanguri, MS, PhD
Columbia University

Jacob Wooldridge, MD
University of Texas Medical Branch

API Trainee Award Donors and Sponsors

College of American Pathologists

Lifepoint Informatics
(William Seay, CEO and Founder)

Edward Klatt, MD
Mercer University

General Data Healthcare, Inc.

Keith Kaplan, MD Publisher
Tissuepathology.com

API Lifetime Achievement Award

The API Lifetime Achievement Award (formerly called the "API Honorary Fellow Award") was established by the API Governing Council in 2002. The Award recognizes individuals who have made significant contributions to the development of pathology informatics as a clinical and academic subspecialty of pathology. Nominations for the award are solicited from the API membership and the API Council selects the recipient. The 2010 and subsequent awards will be presented at Pathology Informatics conference. (Previous awards were presented at either APIII or LabInfoTech Summit.)

Liron Pantanowitz, MD

The Association for Pathology Informatics presented its Lifetime Achievement Award to Liron Pantonwitz, MD at the 2019 Pathology Informatics Summit in Pittsburgh, PA. The presenter was Dr. Monica E. de Baca.

Dr. Liron Pantanowitz graduated from the University of the Witwatersrand in South Africa and completed his residency in anatomic and clinical pathology at Beth Israel Deaconess Medical Center, Harvard Medical School, in Boston. During his career at Tufts University School of Medicine, Baystate Medical Center, and the University of Pittsburgh Medical Center (UPMC), Dr. Pantanowitz achieved regional, national and international recognition as a leader in the pathology field. Currently, he is Vice Chair of Pathology Informatics, Professor of Pathology & Biomedical Informatics, Director of Cytology, and Director of the Pathology Informatics Fellowship at UPMC.

Dr. Pantanowitz is a co-founder and co-Editor-in-Chief of the Journal of Pathology Informatics alongside Dr. Anil Parwani. Along with Dr. Parwani, Dr. Pantowitz has dedicated nearly a decade towards establishing API's official journal, the Journal of Pathology Informatics (JPI). He helped to position JPI as an internationally recognized open access peer-reviewed journal dedicated to the advancement of pathology informatics. Aligned with API's mission to promote the field of pathology informatics as an academic and a clinical subspecialty of pathology, JPI publishes cutting edge research performed in the field of pathology informatics to promote scientific research and informatics education.

In 2013, Dr. Pantanowitz served as API president and continues to support the digital pathology committee of the College of American Pathology and the Digital Pathology Association board of directors. His research interests include cytopathology and informatics. His informatics interests lie at the intersection of informatics and digital pathology. He spearheaded landmark clinical guidelines for promoting adoption of digital pathology and developing a national pathology informatics curriculum.

Dr. Pantanowitz is widely published in the field of pathology informatics including digital imaging and its application to pathology. His dedication to merging diagnostic pathology to education has proven his significance to the future of the field. We are grateful for his contributions and ongoing work and, thus, honor Dr. Liron Pantanowitz with API's 2019 Lifetime Achievement Award.

Digital Pathology Workshop 2.0: On December 7-8, 2018, the annual Digital Pathology Workshop was held at the James Cancer Hospital and Solove Research Institute at The Ohio State University campus. This workshop was the second in a planned continuing series of hospital-based, practical workshops focused on digital pathology.

"WSI for Primary Diagnosis in the US: The Initial Experience"
Anil Parwani, MD, PhD, MBA (OSU)

"Effective Digital-Enabled AP Workflow: The Henry Ford Experience"
J. Mark Tuthill, MD (Henry Ford)

"Preparing an RFP for a Digital Pathology System"
Liron Pantanowitz, MD (UPMC)

"Configuring Your Digital Pathology System Based on Strategic Departmental Goals"
Ulysses Balis, MD (Michigan Medicine)

"Digital Pathology – Hype Vs. Reality"
David McClintock, MD (Michigan Medicine)

"Integrating Digital Pathology with your AP-LIS
S. Joseph Sirintrapun, MD, FASCP, FCAP (MSKCC)

"Strategies for Integrating Digital Pathology into your Business Plans and Workflow"
Chris Garcia, MD (LapCorp)

"Computational Pathology: Opportunities as a Companion Diagnostic for Precision Medicine"
Anant Madabhushi, PhD (Case Western)

"WSI Meets Deep Learning: A Preview of the Future"
Michael Feldman, MD, PhD (University of Pennsylvania)

"Artificial Intelligence and the Practice of Pathology
Toby C. Cornish, MD, PhD (University of Colorado)

API will hold the next Digital Pathology Workshop 3.0 at the University of Pittsburgh Medical Center on December 13-19, 2019.

API/Sunquest Educational Webinars: Experts discussed pathology informatics and driving factors in laboratory efficiency and effectiveness in large multi-hospital systems, focusing on ways to improve workflow, reduce costs and improve outcomes, while delivering value-based care for hospital organizations. This year's API/Sunquest webinars also focused on ways to encourage innovation in the clinical and pathology laboratories, including the support for quality laboratory reporting throughout a large health system environment.

Part 1 - February 26, 2019 (1pm ET/10am PT): This webinar focused on ways you can improve workflow, reduce costs and improve outcomes, while delivering value-based care for your organization. Our first speaker, Dr. Anil Parwani, walked through the logistical challenges of a multi-hospital digital pathology deployment, various scenarios, including core histopathology processing and centralized pathologist review, that can result in a reduction in processing and resource redundancies, and improve pathologist collaboration and review. Next, Dr. Brian Jackson discussed the various pro's and con's of the insourcing and outsourcing of tests – from the routine to the more specialized esoteric testing – and helped to identify what one needs to consider when developing centers of excellence expertise and to support the reduction in send out costs and improve workflow. Moderated by: Bob McGonnagle (Publisher, CAP Today).

Part 2 - March 26, 2019 (1pm ET/10am PT): This session focused on encouraging innovation in the clinical and pathology laboratories, including the support for quality laboratory reporting throughout a large health system environment.

Clinical Informatics Medical Subspecialty: Clinical Informatics (CI) is a board-certifiable subspecialty primarily housed in the American Board of Preventive Medicine and co-sponsored by the American Board of Pathology. Pathologists are the only candidates outside of Preventive Medicine who are allowed to register for the exam through their own specialty board. Currently, candidates can qualify for the exam by either completing an ACGME-accredited fellowship or through the Practice Pathway. Since the first exam administered in October 2013, 1,870 physicians from 24 specialties have become boarded, with pathologists comprising 123 (6.6%) of total CI diplomates. The year 2018 featured Cohort 6, consisting of 178 diplomates, 16 of whom were pathologists (representing 9.0% of 2018's diplomates). Of note, 2022 will be the last year one can apply for the CI board exam through the Practice Pathway, barring an extension by the American Board of Medical Specialties.

Journal of Pathology Informatics (JPI)

The Journal of Pathology Informatics (JPI) is an open access, peer-reviewed journal dedicated to the advancement of pathology informatics. This is the official journal of the Association of Pathology Informatics (API). The first issue was published in March 2010. The Journal of Pathology Informatics (JPI) is now in its ninth year and JPI continues to grow. We continue to have high-quality pathology informatics articles being submitted. Dr. Liron Pantanowitz and Dr. Anil V. Parwani wish to thank the editorial board and the API for their continued support.

JPI aims to publish broadly about pathology informatics and freely disseminate all articles worldwide. All types of papers related to pathology informatics are published, including original research articles, technical notes, reviews, viewpoints, commentaries, editorials, book reviews, and correspondence to the editors. All submissions are subject to peer review by the editorial board and expert referees in appropriate specialties.

The journal is registered with the following abstracting partners: Baidu Scholar, CNKI (China National Knowledge Infrastructure), EBSCO Publishing's Electronic Databases, Ex Libris – Primo Central, Google Scholar, Hinari, Infotrieve, National Science Library, ProQuest, TDNet, Wanfang Data. The journal is indexed with, or included in, the following: DOAJ, PubMed Central, SCOPUS.

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PUBMED Listed Articles:
https://www.jpathinformatics.org/browse.asp?date=0-0.

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Brief report, Case report, Images, Book reviews, Technical note: US $300
Original Article, Research article: US $400
Symposiums and Conference Proceedings - $40 per page
Invited Book Reviews: Free
Publication fees are for current members of the Association for Pathology Informatics (API): $100 US (unlimited per membership year)
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2019

Publisher Report

Journal of Pathology Informatics

Journal of Pathology Informatics (JPI)

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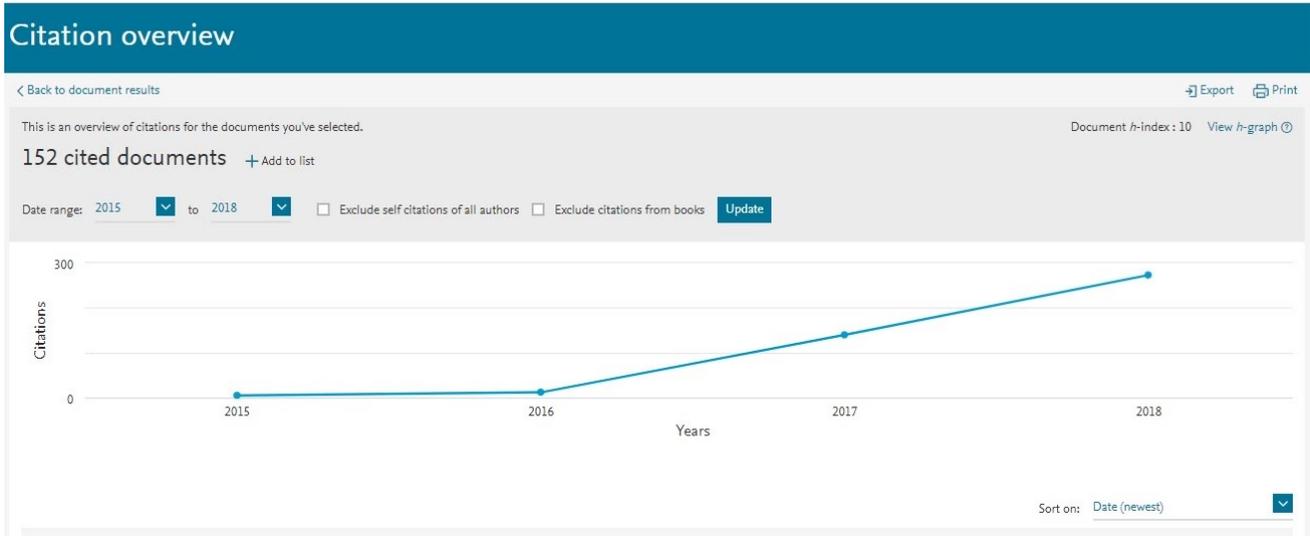
Country Wise Manuscript Submissions for 2018

The journal has observed 43% overseas article submissions, whereas the submissions from the native country was 57% in 2018.

Manuscript Submissions
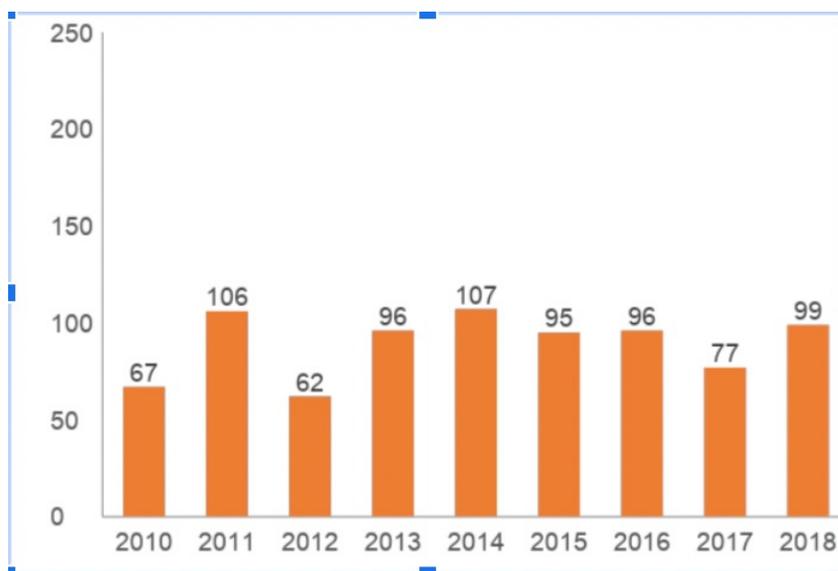
The journal has observed submissions of around 100 manuscripts per year. 99 manuscripts have been submitted in 2018.

Rejection Rates
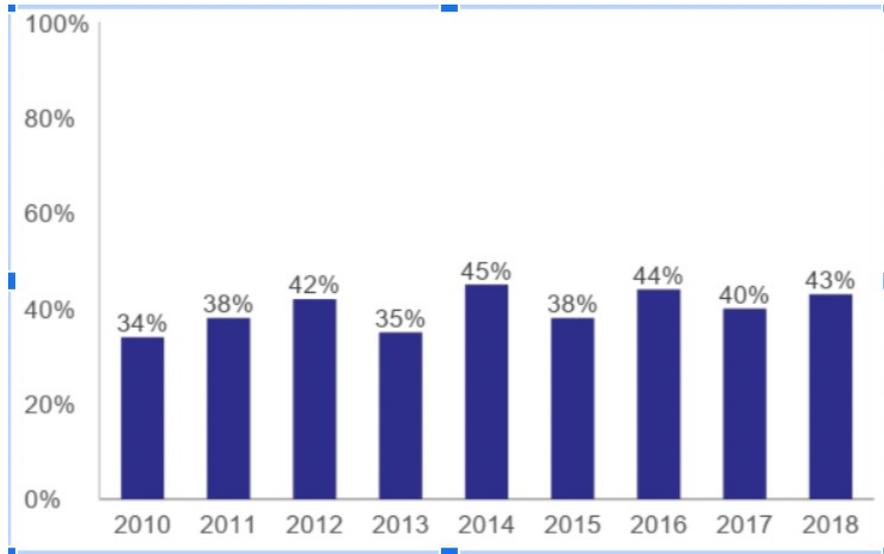
The journal has observed a low rejection rate ranging between 34% to 45%. The rejection rate for 2018 was 43%.

Number of Articles Published
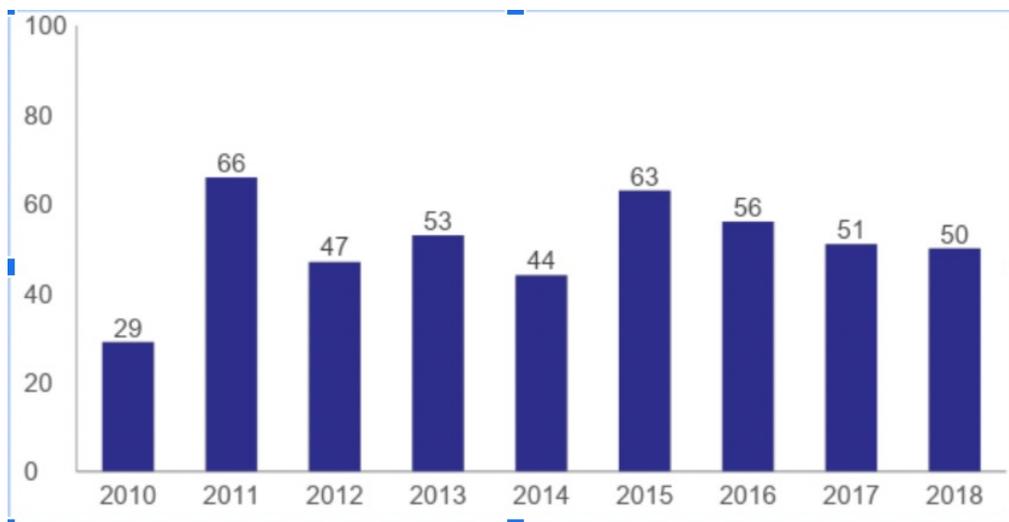
The journal has been publishing substantial number of articles every year from 2010 till 2016. 50 articles have been published in 2018.

## Website Visitors Analysis

Mobile Device Information

	Mobile Device Info	Acquisition		
		Users	New Users	Sessions
		6,637 % of Total: 12.61% (52,637)	6,641 % of Total: 12.79% (51,916)	8,230 % of Total: 11.60% (70,943)
1.	Apple iPhone	2,689 (40.39%)	2,686 (40.45%)	3,341 (40.60%)
2.	Apple iPad	676 (10.15%)	674 (10.15%)	864 (10.50%)
3.	Microsoft Windows RT Tablet	184 (2.76%)	182 (2.74%)	218 (2.65%)
4.	Xiaomi Redmi Note 4	66 (0.99%)	67 (1.01%)	91 (1.11%)
5.	Samsung SM-G950F Galaxy S8	52 (0.78%)	52 (0.78%)	78 (0.95%)
6.	Samsung SM-G610F J7 Prime	48 (0.72%)	48 (0.72%)	60 (0.73%)
7.	Acer A1-850 Iconia	44 (0.66%)	44 (0.66%)	50 (0.61%)
8.	Meizu MX4 Pro	44 (0.66%)	44 (0.66%)	44 (0.53%)
9.	Samsung SM-G930F Galaxy S7	39 (0.59%)	39 (0.59%)	44 (0.53%)
10.	Samsung SM-G935F Galaxy S7 Edge	36 (0.54%)	35 (0.53%)	50 (0.61%)

For accessing the journal contents; iPad and iPhones are being used at maximum occasions.

# Journal of Pathology Informatics (JPI)

Country Wise Visitors

Country	Acquisition		
	Users ↓	New Users	Sessions
	52,476 % of Total: 99.69% (52,637)	51,816 % of Total: 99.81% (51,916)	70,776 % of Total: 99.76% (70,943)
1. 🇺🇸 United States	20,322 (38.58%)	19,952 (38.51%)	27,012 (38.17%)
2. 🇮🇳 India	5,261 (9.99%)	5,229 (10.09%)	6,827 (9.65%)
3. 🇬🇧 United Kingdom	2,422 (4.60%)	2,360 (4.55%)	3,303 (4.67%)
4. 🇨🇦 Canada	1,723 (3.27%)	1,693 (3.27%)	2,331 (3.29%)
5. 🇨🇳 China	1,419 (2.69%)	1,381 (2.67%)	1,858 (2.63%)
6. 🇩🇪 Germany	1,328 (2.52%)	1,301 (2.51%)	1,762 (2.49%)
7. 🇯🇵 Japan	1,143 (2.17%)	1,124 (2.17%)	1,725 (2.44%)
8. 🇫🇷 France	1,078 (2.05%)	1,063 (2.05%)	1,347 (1.90%)
9. 🇰🇷 South Korea	967 (1.84%)	959 (1.85%)	1,282 (1.81%)
10. 🇦🇺 Australia	961 (1.82%)	954 (1.84%)	1,436 (2.03%)

The above table shows country-wise analysis of journal's website visitors and details of their visits for the year 2018.

City Wise Visitors

| City	Acquisition		
	Users ↓	New Users	Sessions
	49,706 % of Total: 94.43% (52,637)	48,888 % of Total: 94.17% (51,916)	67,016 % of Total: 94.46% (70,943)
1. New York	1,359 (2.66%)	1,317 (2.69%)	1,690 (2.52%)
2. Bengaluru	779 (1.52%)	766 (1.57%)	964 (1.44%)
3. London	697 (1.36%)	653 (1.34%)	886 (1.32%)
4. Paris	635 (1.24%)	622 (1.27%)	699 (1.04%)
5. Ashburn	599 (1.17%)	598 (1.22%)	599 (0.89%)
6. Chennai	563 (1.10%)	548 (1.12%)	748 (1.12%)
7. Seoul	478 (0.94%)	470 (0.96%)	633 (0.94%)
8. Boston	447 (0.87%)	429 (0.88%)	609 (0.91%)
9. Los Angeles	446 (0.87%)	428 (0.88%)	559 (0.83%)
10. Hyderabad	420 (0.82%)	413 (0.84%)	559 (0.83%)

The above table shows city-wise analysis of journal's website visitors and details of their visits for the year 2018.

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Presence of API in National Initiatives: The Association for Pathology Informatics believes that pathology informatics is an integral part of the practice of Pathology in the 21st Century and therefore strongly supports informatics education for all pathology residents. This led us into a partnership with the Association of Pathology Chairs and the College of American Pathologists to create Pathology Informatics Essentials for Residents, or PIER. PIER "is a research-based instructional resource that presents training topics, implementation strategies and resource options for program directors and faculty to effectively provide informatics training to their residents and meet ACGME informatics milestone requirements. PIER is also an effective resource for aspiring specialists to develop prerequisite pathology informatics knowledge and skills prior to advanced training or fellowships." ("Pathology Informatics Essentials for Residents (PIER)." Association of Pathology Chairs, Web. 21 June 2018.) Please visit the PIER website for more information.

In further support for pathology informatics education, API has long provided pathology informatics "boot camps" on the first day of the Pathology Informatics Summit. Recordings of the presentations and the presentation slides have been reviewed and mapped to the PIER Essentials to assist pathology residency faculty in the delivery of pathology informatics knowledge to our residents.

Exhibit 1: PIER Scope and Sequence

E-1

PIER Essentials 1

- Informatics in Pathology Practice
- Information Systems Fundamentals
- Importance of Databases
- Introduction to Data Standards
- Data Availability & Security

Entry-Level Proficiency
ACGME Milestone Level 1
Instructional Hours: 4-6

E-2

PIER Essentials 2

- LIS Components & Functions
- Specialized LISs & Middleware
- Data & Communication Standards
- Digital Imaging
- Basics of the Health Care Information Ecosystem

Basic Proficiency
ACGME Milestone Level 2
Instructional Hours: 8-10

Pathology Informatics Essentials for Residents

E-3

PIER Essentials 3

- Pathologist Role in LIS & EHR Projects
- LIS Installation & Configuration
- Information Systems & Laboratory Performance
- Data Security, Regulatory, & Accreditation Requirements

Intermediate Proficiency
ACGME Milestone Level 3
Instructional Hours: 10-12

E-4

PIER Essentials 4

- LIS Management & Oversight
- Order and Results Management
- Laboratory Data for Quality Improvement & Research
- Laboratory Data & Enterprise Health Care Analytics

Advanced Proficiency
ACGME Milestone Level 4
Instructional Hours: 10-14

Much has been accomplished since the last PIER update. After the initial launch in late 2014, we transitioned leadership from a working group of informatics experts to the PIER Leadership Committee made up of pathology residency program directors (representing the Association of Pathology Chairs) in addition to two informatics experts (representing the Association for Pathology Informatics and the College of American Pathologists). The committee is supported by staff from each association. The CAP also provides project management and instructional design resources to support the work of the committee. The PIER Leadership Committee is charged with carrying the curriculum forward and supporting its further adoption. We've spent the last several years growing the PIER Leadership Committee to include residents, collecting data from stakeholders to understand their needs, using feedback to make curriculum improvements resulting in 3 releases, researching and submitting for grant funding, collaborating with ASCP to 1) pilot test informatics questions for the RISE exam, 2) collect data from residents about their informatics training experiences, and 3) create a separate category for informatics on exam reports so that program directors can monitor resident performance. The committee also provided program director representation to the ACGME Milestones 2 Informatics Work Group.

As a reminder, PIER is a free curriculum and it can be found on the APC website at: www.apcprods.org/pier.
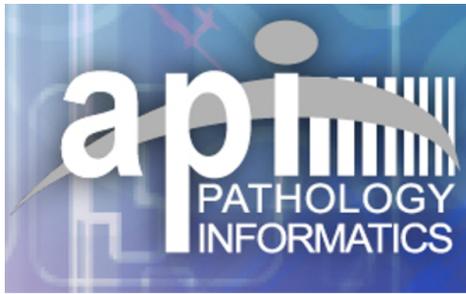
Other API Educational Programs: The API was represented at a number of national conferences. API-branded content was delivered at the annual meetings of the College of American Pathologists (CAP) and the Association for Molecular Pathology (AMP). The API will continue to participate as a Companion Society of the United States and Canadian Academy of Pathology (USCAP) at their annual meeting. API-branded content has also been delivered to the Pathology Visions meeting held by the Digital Pathology Association. API will be presenting 11 hours of material at the ASCP Annual Meeting 2019.

Official representatives of the API have also been involved in a number of national initiatives, including, but not limited to the American Society for Clinical Pathology (ASCP), USCAP, and AMP. Select members also participate in multiple standards organizations such as Health Level 7 International (HL7) and Digital Imaging and Communications in Medicine (DICOM) as well as provide guidance on important national topics like the Food and Drug Administration certification of whole slide imaging, computational pathology and algorithm use. Many of our members also provide informatics talks at local, regional, national, and international specialty meetings such as the Companion Society Session, the ASCP Annual Meeting, Digital Pathology Association Annual Session, the American Association for Clinical Chemistry (AACC) Annual Meeting and AACC University Pathology Informatics Boot Camp, Healthcare Information and Management Systems Society, Inc. (HIMSS), and Society for Imaging Informatics in Medicine (SIIM).
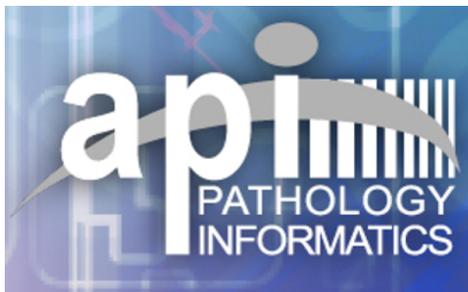
Abbott Informatics
AetherAI
Apollo
Caliber Imaging & Diagnostics, Inc.
Digital Pathology Association
General Data Healthcare, Inc.
Gestalt Diagnostics
Hamatasu Corporation
Huron Digital Pathology
Inspirata
Leica Biosystems
Mikroscan
Roche Diagnostics
Sakura Finetek USA, Inc.
Sectra Pathology PACS
SPOT Imaging
Sunquest Information Systems, Inc.
Thermo Fisher Scientific
Visiopharm
Visiun
Voicebrook
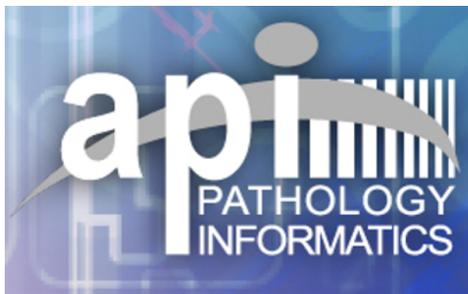
Teaching Institutional Members

Since its inception in 2011, API's Teaching Institutional Membership program has been very successful in attracting the 'best-in-class' academic institutions that have collectively demonstrated leadership in adopting and teaching information technology in the medical (and specifically pathology) specialties. API offers unlimited, free publication of all accepted articles in the Journal of Pathology Informatics to any faculty, resident, or fellow employed at an API Teaching Institution.

For a list of institutional members, please contact Nova Smith, API Executive Director (nova.smith@pathologyinformatics.org).

Membership Benefits

- Access to official API Listserv, materials, and broad member expertise
- Access to continually updated educational content and features for those without Pathology Informatics expertise and to help current and future Pathology Informatics faculty save time creating educational content by sanctioned reuse of member content. There are currently over 100 recorded lectures and PowerPoint slideshows available from past API meetings (PI Summit, Digital Pathology and AI workshop, etc.) on the API website for members to access and review for educational purposes.
- Access to training webinars, programs, and PIER content
- Discounted publication fees for the API's Journal of Pathology Informatics
- Reduced registration rate for members at the Annual API Summit Meeting
- Networking connections

	API FY19 Revenue		API FY19 Expenses		API FY19 Net Revenue/(Loss)
	API Membership	$61,849.50	API Membership Meeting Expenses	$297,684.92	
	Pathology Informatics Summit	$272,623.75	Staff Includes Taxes and Benefits (includes 1099 staff)	$121,956.73	
	Digital Pathology Workshop	$104,270	Journal of Pathology Informatics	$3,025	
	Journal of Pathology Informatics	$12,943	Other Expenses	$17,639.98	
	Other Revenue	$3,759.29			
Subtotal		**$455,445.54**		**$440,306.63**	**$15,138.94**

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