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Trends in Publication of Oncologic Abstracts Presented at the American Urological Association Annual Meeting: 1997–2017

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Study Need and Importance: The quality of abstracts presented at the American Urological Association (AUA) Annual Meeting is important, as these findings translate into changes in urological care. The ultimate publication of an abstract as a manuscript allows the clinical message to reach a wider audience after peer review. We assessed the publication rates of oncology-focused abstracts accepted for the AUA Annual Meeting across 2 decades, 1997–2017.

What We Found: A majority of oncology abstracts presented at the AUA Annual Meeting were published (56.3%), with a shorter median time to publication (1.1 years) compared to abstracts presented at other surgical subspecialty conferences, suggesting strong research questions were presented. Despite a 45% increase in journals indexed by MEDLINE® (from 3,874 in 1997 to 5,617 in 2017), the rates and impact factors of eventual publication remained remarkably consistent within our sample throughout the study period (see Figure). However, over the same period, there was a 96% increase in abstracts (from 634 to 1,244). While the overall rate of publication did not increase as we had hypothesized, the increase in abstracts disproportionate to indexed journals suggests that an increasing number of abstracts were published each year to maintain the same publication rate.

Limitations: This study is limited to abstracts published in urologic oncology and only utilized the MEDLINE database to define publication. To identify

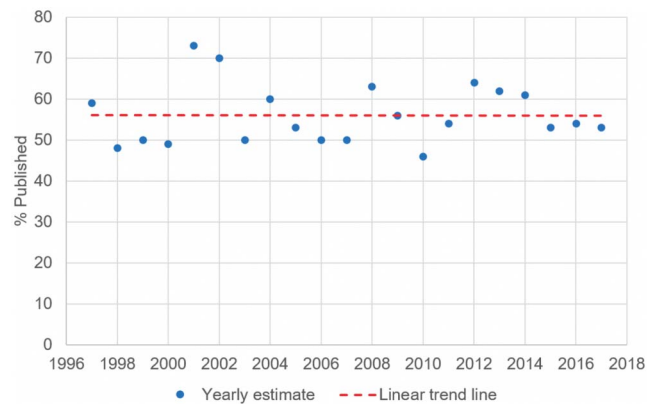



Figure. Percentage of abstracts published stratified by year of AUA Annual Meeting (linear trend $R^2 < 0.0001$, $p = 0.996$).

the same study over time, it was also assumed that the first and last author of the abstract would be included on the eventual manuscript.

Interpretation for Patient Care: Oncology abstracts presented at the AUA Annual Meeting continue to be of high scientific quality, publishing in reputable journals with a wide audience and broad clinical impact. Authors presenting abstracts at the AUA Annual Meeting remain committed to providing timely, validated research on key urologic oncology advancements for patients and providers.

Trends in Publication of Oncologic Abstracts Presented at the American Urological Association Annual Meeting: 1997–2017

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Abstract:

Introduction: Our primary aim was to characterize eventual publication of presented American Urological Association (AUA) Annual Meeting oncology abstracts from 1997 to 2017. We hypothesized that the percentage of abstracts presented at the AUA Annual Meeting that became published peer-reviewed manuscripts increased over time.

Methods: AUA Annual Meeting abstracts in “oncology” categories from 1997 to 2017 were identified. A random sample of 100 abstracts per year were assessed for publication. An abstract was considered “published” if 1) first and last author of the abstract were included on publication, 2) abstract and publication shared 1 conclusion, and 3) publication occurred from 1 year prior to the AUA Annual Meeting up to 10 years after. The search was conducted on PubMed® utilizing the MEDLINE® database.

Results: Over the 20-year observation period, 2,100 abstracts were reviewed and 56.3% were published. The number of journals in which manuscripts were published increased from 1997 to 2017 ($R^2=0.58$, $p < 0.001$), although here wasn't an increased publication rate for AUA Annual Meeting abstracts. Median time to publication was 1.1 years (IQR: 0.6–2.2). Median impact factor (IF) of publications was 3.3 (IQR 2.4–4.7). There was a decrease in median IF with longer interval to publication, from 3.6 within 1 year to 2.8 at more than 3 years ($p=0.0003$). Publications from multi-institutional abstracts had a higher mean IF (3.7 vs 3.1, $p < 0.0001$).

Conclusions: The majority of oncology abstracts presented at the AUA Annual Meeting are published. Despite growth in the number of journals and rise in IF among top urology journals, the rate of publication and IF were stable over time.

Key Words: urology, publishing, periodicals as topic, meeting abstracts [publication type], peer review

Abbreviations and Acronyms

AUA = American Urological Association

IF = impact factor

RCT = randomized controlled trial

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Ethics Statement: This study was deemed exempt from Institutional Review Board review.

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Providers attend academic medical conferences to update themselves on recent advances, develop new skills and gain deeper knowledge in their respective fields.¹ Acceptance to present at a meeting is usually measured by the contents of an abstract.² Publication of a full manuscript is scrutinized by editorial peer review, which is still regarded as a cornerstone of quality assurance in academic medical scholarship.^{3,4} Given that abstracts are subject to a similar initial peer review, particularly at major international meetings, abstract acceptance serves as an initial check on the quality of a research project.

The American Urological Association (AUA) Annual Meeting is one of the most widely attended urological conferences in the world, representing research from across the globe. Given its wide audience and the clinical implications of presented work, it is important to understand the outcome of these works. Prior studies published found that between 38% and 57% of abstracts presented at the AUA Annual Meeting went on to be published in peer-reviewed journals.^{5–7} However, these studies were published 14–17 years ago, and none covered more than 3 years of AUA conferences. One study of 2017 AUA Annual Meeting podium presentations showed that 51.9% of accepted abstracts were published within 3 years, while a recent abstract found that 13.8% of urologic oncology AUA Annual Meeting abstracts from 2012 to 2019 were published.^{8,9} Additionally, from 1997 to 2017, the most recent year with data available, the number of journals indexed by the MEDLINE® database increased from 3,874 to 5,617, or 45.0%,¹⁰ while the number of oncologic abstracts presented at the AUA Annual Meeting increased from 634 in 1997 to 1,244 in 2017, or 96%.

Our primary aim is to characterize eventual publication of accepted AUA Annual Meeting urologic oncology abstracts from 1997 to 2017. With the continued quality control of AUA Annual Meeting abstracts by peer review and the expansion of journals, particularly open-access and online-only journals, we hypothesize that the proportion of presented AUA Annual Meeting abstracts proceeding to peer-reviewed publication has increased over time despite a more rapid relative increase in the number of accepted abstracts compared with MEDLINE indexed journals.

Methods

Abstract Selection

AUA Annual Meeting abstracts from 1997 to 2003 and programs from 2004 to 2017 were obtained from the William P. Didusch Center for Urologic History. An abstract was considered oncologic if the title of the AUA Annual Meeting

section contained the word “cancer” or “neoplasm.” Among oncologic abstracts, 100 were randomly selected each year for review by sorting for lowest random number as generated by Microsoft® Excel® 2016 RAND function. For the purpose of power calculation, the study assumed an average of 700 abstracts each year based on the first 10 years reviewed, and with a random sample of 100 abstracts per year, we have 80% power and precision of 5% to estimate the total number of publications from abstracts. Video abstracts were excluded.

Determining Abstract Publication

Abstracts were divided by year among a team of trained reviewers who utilized the MEDLINE database to identify publications. An abstract was deemed published if the first and last authors of the abstract were included on the final publication and if the abstract and publication shared at least 1 conclusion. First and last author last names were included in the search, and first initials or names were observed by reviewers. The search was limited to 1 year prior to the conference and up to 10 years after the AUA Annual Meeting. For the years 2011–2017, the time frame for publication was 1 year prior to the AUA Annual Meeting at which it was presented till the date the search was conducted. The search for publication occurred between April 27 and June 26, 2021.

Variables

The following was recorded for each abstract studied: conference year, date of abstract supplement publication, final date of conference, abstract number, presentation type, cancer represented as identified by AUA Annual Meeting subsection, country/state of origin via first author country/state if multiple institutions were represented, publication date, impact factor (IF) of journal in the year it was published and journal title. IF was assessed utilizing Clarivate™ Analytics' Journal Citation Reports™.¹¹ Publication date was identified from the citation on the PubMed® interface. If no exact date was specified, the first of the month was selected. STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) criteria for observational studies were followed during the design of this study and reporting of results.¹²

Statistical Analysis

Descriptive statistics of abstract characteristics were reported as counts and percentages or medians and interquartile ranges. We determined the proportion of total abstracts

published in addition to the proportion of published abstracts within each year of the AUA Annual Meeting. For time to event (publication) analysis, we used Kaplan-Meier survival methods with abstract presentation date as reference time and publication as the outcome indicator. We also calculated cumulative proportion of abstracts published at a given time point. Bivariate analysis was performed using chi-square or Fisher's exact test to assess the association between abstract characteristics and likelihood of publication. The Mann-Whitney U test was used to assess the association between abstract characteristics and the IF of published abstracts. Multivariate logistic regression was conducted to control for various factors in the analysis of publication and IF. All analysis was performed using Stata® 17.0 (StataCorp LLC, College Station, Texas) with $p < 0.05$ considered as significant.

Results

Characteristics of Abstracts

A total of 2,100 abstracts were reviewed. The total number of oncology abstracts at the AUA Annual Meeting increased by 96% between 1997 (634) and 2017 (1,244). Among reviewed abstracts, more than 50% were related to prostate cancer (1,204, 57.4%), followed by bladder cancer (439, 20.9%) and kidney/ureteral cancer (401, 19.1%). Full abstract characteristics are depicted in Table 1. The majority of first authors (1,212, 57.7%) were from the United States. A total of 716 publications (34.2%) had authors from multiple institutions. Basic science was the most common type of study (696, 33.2%), followed by cohort studies (539, 25.7%) and case reports/series (408, 19.5%).

Publication of Abstracts

Out of a total 2,100 abstracts, 1,179 (56.3%) were published within the study period. A total of 190 (16%) were published prior to being presented at the AUA Annual Meeting. Of those published beyond the AUA Annual Meeting, median time to publication was 1.1 years (IQR: 0.6–2.2; Fig. 1). Stratified by year of AUA Annual Meeting, publication rate was relatively stable (Fig. 2), with a median of 54% and IQR of 50%–61%. Half the published abstracts went to 6 journals (Fig. 3). The number of journals in which abstracts were published increased significantly over time from a minimum of 21 in 1997 to a maximum of 36 in 2017 ($R^2=0.58$, $p < 0.001$; Fig. 4). A full list of journals publishing at least 5 abstracts is presented in Appendix 1. Table 2 demonstrates the bivariate associations between abstract characteristics and publication of abstract. Among

Table 1. Characteristics of abstracts

	No. (%)
Total abstracts	2,100 (100)
Ca type:	
Prostate	1,204 (57.4)
Bladder	439 (20.9)
Kidney and ureteral	401 (19.1)
Penile, testicular, urethral	26 (1.2)
Urothelial	26 (1.2)
Not specified	3 (0.1)
Country of origin:	
U.S.	1,212 (57.7)
Non-U.S.	888 (42.3)
Continent of origin:	
North America	1,301 (61.9)
Europe	481 (22.9)
Asia	286 (13.6)
South America	13 (0.6)
Oceania	12 (0.6)
Africa	7 (0.3)
Authors from multiple institutions:	
Yes	716 (34.2)
No	1,378 (65.8)
Study design:	
Basic science	696 (33.2)
Cohort	539 (25.7)
Case report/series	408 (19.5)
Case-control	124 (5.9)
RCT	93 (4.4)
Cross-sectional	90 (4.3)
Systematic review/meta-analysis	13 (0.6)
Other	132 (6.3)
Presentation type:	
Moderated poster	1,083 (51.6)
Podium	416 (19.8)
Unmoderated poster	301 (14.3)
Discussed poster	297 (14.1)
Outstanding poster	3 (0.1)

study designs randomized controlled trials (RCTs; 65.6%) and systematic reviews (61.5%) were most likely to be published, but the association between study design and publication did not reach statistical significance ($p=0.051$). There was no statistically significant association between getting published and cancer type ($p=0.868$), abstract presentation type ($p=0.307$), country of origin ($p=0.231$) or continent of origin ($p=0.288$; Table 2). No significant associations were identified upon multivariate analysis (Appendix 1).

IF

The median IF of published articles was 3.3 (IQR 2.4–4.7). There was a significant stepwise decrease in IF associated with longer time to publication ($p=0.0003$; Fig. 5). Study design was significantly associated with IF of publications ($p=0.0001$) with basic science (median 3.8, IQR 2.8–5.7) having the highest IF, followed by systematic review/meta-analysis (median 3.7, IQR 2.7–3.9) and RCTs (3.7, IQR

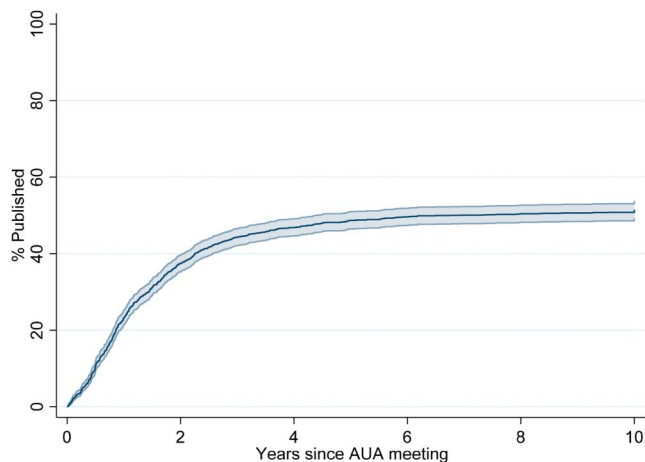


Figure 1. Cumulative percentage and 95% CI of abstracts published over time (excluding 190 abstracts published prior to AUA Annual Meeting).

2.6–7.7; Table 3). Continent of origin was also associated with IF of final publication, with North America (median 3.5, IQR 2.5–4.8) and Europe (median 3.3, IQR 2.4–4.8) both having median IFs above 3. Publications from multi-institutional abstracts had a significantly higher IF compared to single institution abstracts (3.7 vs 3.1, $p < 0.0001$). IF was not significantly associated with cancer type ($p = 0.090$) or presentation type ($p = 0.434$). Utilizing multivariate regression, abstract year (OR 1.10, $p < 0.001$) and being a study with authors from multiple institutions (OR 1.62, $p = 0.002$) were associated with being in the top quartile of IFs, while studies originating in Asia were less likely to be in the top quartile of IFs within our sample (OR 0.28, $p < 0.001$; Appendix 3).

Discussion

Our study shows that the majority of abstracts presented at the AUA Annual Meeting were published, with a stable rate

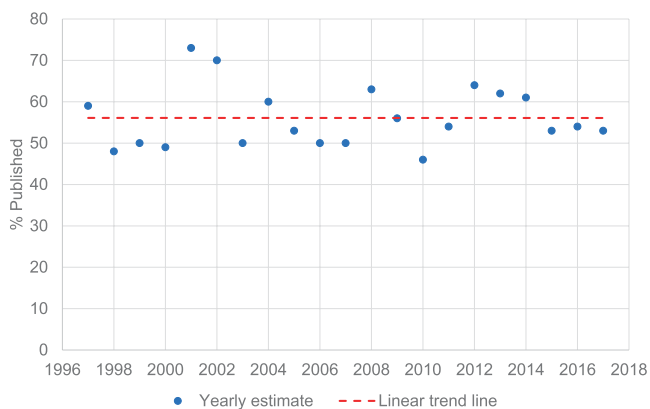


Figure 2. Percentage of abstracts published stratified by year of AUA Annual Meeting (linear trend $R^2 < 0.0001$, $p = 0.996$).

over the 20 years. We observed a publication rate consistent with the 37.8%–55% publication rate found in past studies of the AUA Annual Meeting published from 2004 to 2006 and the 37.4%–46.4% rate observed in a recent systematic review.^{5–7,13} Our publication rate is also similar to a study finding 56.8% of prostate cancer abstracts at the congress of the European Association of Urology from 2015 to 2018 went on to be published and a 56% publication rate from 2000 to 2010 at the Quebec Urological Association annual meetings.^{14,15} Of note, a study of 2017 AUA Annual Meeting podium presentations showed a publication rate of 51.8% over 3 years, which is near our publication rate for both 2017 and over the course of our study.⁹ A recent abstract found that 13.8% of AUA Annual Meeting urologic oncology abstracts achieve publication based on title matching alone.⁸ This low publication rate is likely due their narrow criteria for identifying publications. Several studies of academic conferences in other surgical subspecialties revealed publication rates of 31.1% at the British Association of Head and Neck Oncologists annual meeting, 69.9% at the American Academy of Orthopaedic Surgeons annual meeting and 54% at the Orthopaedic Trauma Association annual meeting.^{16–18} The studies from other national subspecialty organizations are in line with our findings for the AUA Annual Meeting. Additionally, the publication rate for RCTs in our study was 65.6%, which is comparable to past analysis of RCT publication.¹⁹ Relatedly, there is mixed evidence regarding the impact urological organ system has on publication rate. A recent study found that penile and prostate cancer podium presentations are more likely to be published than other organ systems; however, older studies find no such relationship.^{6,9} We found no significant relationship between oncologic organ system and publication rate.

It is also notable that despite surveying the same number of abstracts per AUA Annual Meeting, the number of unique journals in which they were published increased over time. Given the increasing numbers of oncologic abstracts annually over time, we may be underappreciating this trend. Our results reflect trends in the total number of indexed journals on MEDLINE during the study period as well.¹⁰ With publication rates stable over time, the increase in abstracts, papers published and indexed journals likely represents an ongoing equilibrium.

Our finding that many abstracts were published in advance of presentation is a common finding among academic conferences, and this trend has been observed in the past at the AUA Annual Meeting.^{6,16,18} The time to publication, while similar to past AUA Annual Meeting studies, is much shorter than recent studies in other surgical subspecialties: 19.4 months at the Orthopaedic Trauma Association annual meeting and 18.8 months at the British Association of Head

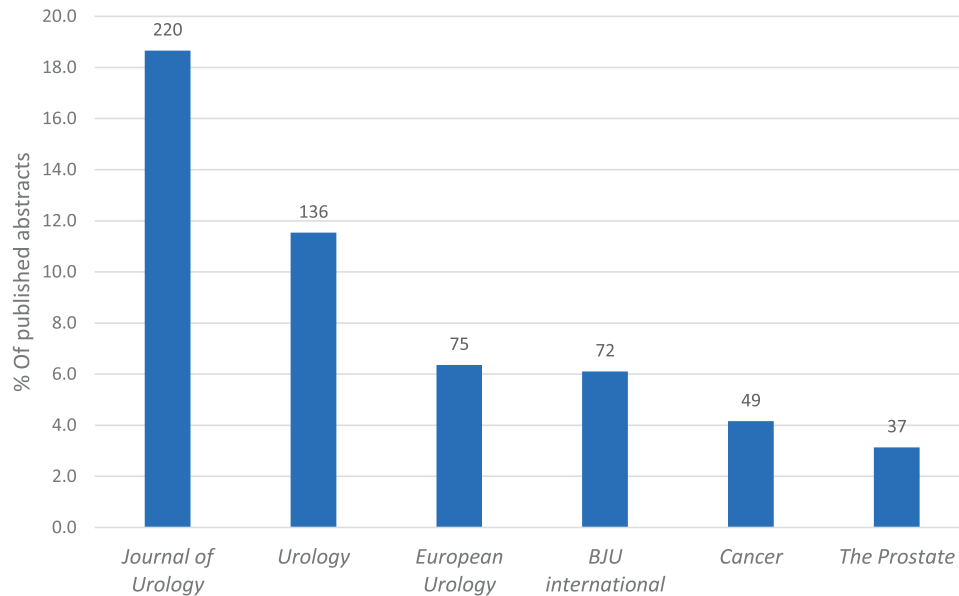


Figure 3. Top 6 journals for published abstracts.

and Neck Oncologists annual meeting.^{6,16,18} This may suggest that AUA Annual Meeting abstracts that achieve publication may be closer to a final product than at other academic conferences. It is notable that we found no relation between presentation type and publication rates. This finding ran counter to our suspicion that podium presentations may be more likely to generate a published manuscript or have a higher IF. While it did not reach significance in univariate analysis, we did find that RCTs and systematic reviews were more likely to be published than other study designs. Our findings differ from a recent systematic review that found oral presentations, RCTs and basic science were more likely to move on to publication.¹³

The median IF for published articles in our study was 3.29. Mean IF from previous publications had ranged from 3.2 to 3.3.^{5,6} While this is consistent with literature from the 2000s, it is important to note that the IF of the journals publishing most of these manuscripts increased over the time frame of this study. From 1997 to 2020 *The Journal of Urology*®, *Urology* and *European Urology* increased their IF from 2.7 to 7.5, 2.2 to 2.7 and 1.0 to 20.1, respectively. For comparison, prostate cancer research presented at the European Association of Urology congress from 2015 to 2018 had a mean published IF of 6.236.¹⁴ Additionally, we must reflect on our finding that IF of publications decreases over time since the meeting. This suggests that the strongest or most attractive research questions

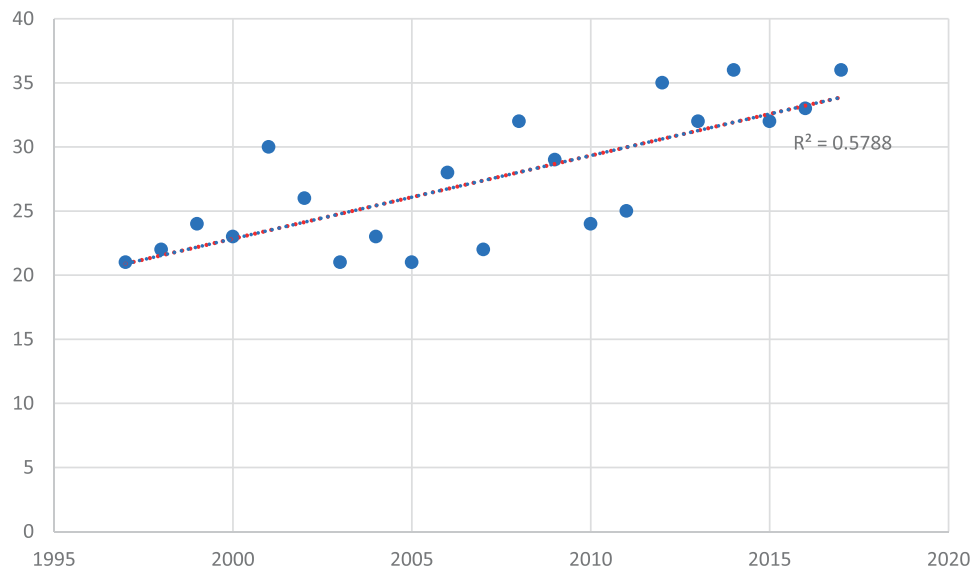


Figure 4. Number of peer reviewed manuscripts (y-axis) published per year (x-axis). Trend across the study period with slope 0.578.

Table 2. Bivariate associations between abstracts characteristics and publication of abstract

	No. Published (%)	p Value
Study design:		0.051
RCT	61 (65.6)	
Systematic review/meta-analysis	8 (61.5)	
Case-control	73 (58.9)	
Cohort	313 (58.1)	
Basic science	395 (56.8)	
Cross-sectional	48 (53.3)	
Case report/series	201 (49.3)	
Other	80 (60.6)	
Ca type:		0.868
Urothelial	17 (65.4)	
Penile, testicular, urethral	15 (57.7)	
Prostate	679 (56.4)	
Bladder	246 (56)	
Kidney and ureteral	220 (54.9)	
Presentation type:		0.307
Unmoderated poster	176 (58.5)	
Podium	241 (57.9)	
Moderated poster	609 (56.2)	
Discussed poster	152 (51.2)	
Outstanding poster	1 (33.3)	
Country of origin:		0.231
Non-U.S.	512 (57.7)	
U.S.	667 (55)	
Continent:		0.288
Oceania	8 (66.7)	
Asia	177 (61.9)	
North America	726 (55.8)	
South America	7 (53.9)	
Europe	258 (53.6)	
Africa	3 (42.9)	

Table 3. Bivariate associations between abstracts characteristics and publication IF

	Median IF (IQR)	p Value
Ca type:		0.09
Bladder	3.5 (2.5–4.5)	
Prostate	3.4 (2.4–4.8)	
Kidney and ureteral	3.0 (2.3 vs 4.3)	
Penile, testicular, urethral	3.0 (2.6–3.6)	
Urothelial	2.7 (1.8–4.4)	
Continent:		<0.0001
North America	3.6 (2.5–4.8)	
Europe	3.3 (2.4–4.8)	
Africa	2.8 (0.8–3.7)	
Asia	2.8 (2.1–3.8)	
Oceania	2.5 (1.6–4.1)	
South America	1.0 (1.0–2.5)	
Study design:		0.0001
Basic science	3.8 (2.8–5.7)	
Systematic review/meta-analysis	3.7 (2.7–3.9)	
RCT	3.7 (2.6–7.7)	
Cohort	3.0 (2.4–4.1)	
Other	3.0 (2.1–3.9)	
Case-control	2.9 (2.3–4.0)	
Case report/series	2.9 (2.2–4.0)	
Cross-sectional	2.7 (2.30–3.6)	
Multi-institutional:		<0.0001
Yes	3.7 (2.5–5.3)	
No	3.1 (2.4–4.3)	
Presentation type:		0.434
Discussed poster	3.6 (2.5–4.8)	
Moderated poster	3.2 (2.4–4.7)	
Podium	3.4 (2.4–4.4)	

are likely to be accepted more quickly and that manuscripts published later may also need more revisions or face more rejection at more impactful journals on their journey to publication.

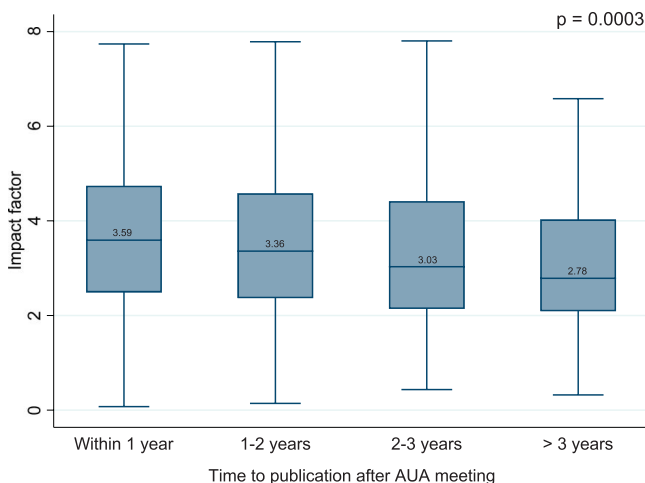


Figure 5. Median IF stratified by time to publication. Box plots show the median value with IQR. Range of values are also shown excluding the extreme points. Extreme values are defined as those more than 1.5 times IQR away from either Q1 or Q3. P value corresponds to a Kruskal-Wallis test comparison of ranks of groups.

This study demonstrated a significant relationship between IF and study design as well as IF and multi-institutional authorship in univariate analysis. While our finding is novel, it is unsurprising that studies with high strengths of evidence would be published quickly and in higher IF journals. These findings did not persist, however, in multivariate analysis. Our study found author continent of origin was significantly associated with publication IF, with North America having the highest IFs. In multivariate analysis, only Asian studies were less likely to publish in the top quartile of IF. Another study surveying 80 urology journals from 2015 similarly found that North American publications had the highest impact measures.²⁰ Finally, another study suggests that reviewers may be biased toward studies from higher gross domestic product nations.²¹ These results suggest that abstract acceptance, manuscript publication and strength of journal favors research from North America and Europe.

In other fields, there has been mixed evidence that multi-institutional studies result in increased citations.^{22,23} Multi-institutional manuscripts had significantly higher IF compared to single-institution projects. Particularly in oncologic work, this may reflect large trials or treatment of more rare diseases that require a multi-institutional approach and may therefore be of great interest to the field.

Appendix 1. Journals with at least 5 AUA Annual Meeting abstracts published

Journals	No.	(%)	Cumulative %
<i>The Journal of Urology</i> ®	220	18.7	18.7
<i>Urology</i>	136	11.5	30.2
<i>European Urology</i>	75	6.4	36.6
<i>BJU International</i>	72	6.1	42.7
<i>Cancer</i>	49	4.2	46.8
<i>The Prostate</i>	37	3.1	50.0
<i>Urologic Oncology</i>	35	3.0	52.9
<i>Cancer Research</i>	22	1.9	54.8
<i>Journal of Clinical Oncology</i>	18	1.5	56.3
<i>Journal of Endourology</i>	18	1.5	57.8
<i>International Journal of Urology</i>	17	1.4	59.3
<i>Prostate Cancer and Prostatic Diseases</i>	17	1.4	60.7
<i>World Journal of Urology</i>	15	1.3	62.0
<i>Canadian Urological Association Journal</i>	13	1.1	63.1
<i>International Journal of Cancer</i>	11	0.9	64.0
<i>American Journal of Pathology</i>	9	0.8	64.8
<i>British Journal of Cancer</i>	9	0.8	65.6
<i>Anticancer Research</i>	8	0.7	66.2
<i>PLoS One</i>	8	0.7	66.9
<i>International Brazilian Journal of Urology</i>	7	0.6	67.5
<i>Scandinavian Journal of Urology and Nephrology</i>	7	0.6	68.1
<i>European Urology Focus</i>	6	0.5	68.6
<i>Journal of the National Cancer Institute</i>	6	0.5	69.1
<i>Oncogene</i>	6	0.5	69.6
<i>Oncotarget</i>	6	0.5	70.1
<i>Neoplasia</i>	5	0.4	70.6

Our study has several limitations. By searching only the MEDLINE database and requiring inclusion of both first and last author of the abstract on the final publication, some

Appendix 2. Multivariate analysis: publication

	OR	95% CI	p Value
Abstract yr	1.00	0.98–1.01	0.74
Ca type:			
Prostate	Reference		
Bladder	1.01	0.80–1.27	0.93
Kidney and ureteral	0.96	0.76–1.21	0.75
Penile/testicular/urethral	1.12	0.49–2.56	0.79
Urothelial	1.38	0.60–3.16	0.45
Continent:			
North America	Reference		
Asia	1.28	0.98–1.68	0.08
Europe	0.89	0.72–1.10	0.27
Africa	0.52	0.11–2.41	0.40
South America	0.93	0.31–2.83	0.91
North America	1.00		
Oceania	1.64	0.48–5.55	0.43
Abstract presentation type:			
Discussed poster	Reference		
Moderated poster	1.21	0.91–1.60	0.18
Podium	1.31	0.94–1.81	0.11
Unmoderated poster	1.33	0.95–1.86	0.09
Authors from multiple institutions	1.15	0.95–1.39	0.15
Study design:			
Systematic review	Reference		
Case-control	0.92	0.28–3.00	0.89
Cross-sectional	0.75	0.23–2.49	0.64
Cohort	0.89	0.28–2.77	0.84
Case report/series	0.63	0.20–1.98	0.43
RCT	1.23	0.37–4.11	0.74
Basic science	0.85	0.27–2.64	0.77
Other	1.01	0.31–3.28	0.99

Appendix 3. Multivariate analysis: odds of being in top quartile of IFs within our sample

	OR	95% CI	p Value
Abstract yr	1.10	1.06–1.13	<0.001
Ca type:			
Prostate	Reference		
Bladder	0.86	0.59–1.26	0.43
Kidney and ureteral	0.75	0.51–1.12	0.16
Penile/testicular/urethral	0.41	0.05–3.52	0.42
Urothelial	1.51	0.43–5.34	0.52
Continent:			
North America	Reference		
Asia	0.28	0.17–0.46	<0.001
Europe	1.01	0.71–1.44	0.95
Africa	No observations		
South America	No observations		
Oceania	No observations		
Abstract presentation type:			
Discussed poster	Reference		
Moderated poster	0.78	0.48–1.28	0.33
Podium	0.87	0.50–1.51	0.63
Unmoderated poster	1.37	0.80–2.37	0.25
Authors from multiple institutions	1.62	1.20–2.18	0.002
Study design:			
Systematic review	Reference		
Case-control	1.27	0.14–11.72	0.83
Cross-sectional	1.10	0.11–10.93	0.94
Cohort	1.43	0.17–12.20	0.75
Case report/series	0.97	0.11–8.47	0.98
RCT	3.05	0.34–27.71	0.32
Basic science	5.47	0.64–46.56	0.12
Other	1.30	0.14–11.90	0.82

published studies may have been missed. Because first and senior author are almost unanimously included on a final publication (though not necessarily in same authorship position), we believe this effect was minimal. With the rise of open-access journals, both high quality and predatory, we may have missed publications not indexed by MEDLINE. As we hypothesized an increased publication rate based on the growth of journals, some of the previously unpublished work may appear in journals outside of the MEDLINE index.

Conclusions

The majority of oncologic abstracts selected for presentation at the AUA Annual Meeting are later published. Despite the increase in journals, the rate of publication is largely stable over the last 20 years, though with lower IF journals as more time passes from AUA Annual Meeting abstract publication. These findings emphasize the strength of the AUA conference, particularly in comparison to similar subspecialty conferences, and suggest an appropriate pace of abstract acceptance as the field grows. Despite the competitive 57% publication rate, however, there may be a knowledge gap among authors on how to transition work from presentation of

an abstract to manuscript publication. Efforts by the AUA and individual mentors may be well served to address this stage of research guidance.

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Editorial Commentary

We commend the authors for conducting a thorough analysis of the publication rates of oncology abstracts presented at the American Urological Association (AUA) Annual Meeting from 1997 to 2017. Oncology studies are

particularly interesting to evaluate as they comprise almost half of all AUA presentations and are published in higher impact factor journals compared to nononcology studies.¹ This study is unique as it demonstrates stable

publication rates over an extended period of time, while other studies evaluating rates of publication did not cover more than 3 years of AUA conferences. The overall publication rate was 56.3%, which is similar to findings in other studies reporting on AUA presentation publication rates.

With almost half of the abstracts not being published, clinicians should be cautious about changing clinical practice solely based on findings presented at the AUA meeting. Abstracts may represent only preliminary results, and they do not undergo as rigorous a peer review process as manuscripts. Additionally, with the increasing ease of information dissemination through social media, it is important to be aware of what data originate from peer-reviewed publications. As Nolte et al demonstrated, only 19.4% of studies from the 2015 AUA meeting mentioned on Twitter were published.² Further work needs to be done to evaluate the reasons for nonpublication and how to improve publication rates. Previous research has demonstrated improved publication success with formal research training,³ and the implementation or strengthening of such research training programs during residency and fellowship should be considered.^{4,5}

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