

Editorial

The AALAS Journals: 2021 in Review

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The November 2021 issue of the *Journal of the American Association for Laboratory Animal Science (JAALAS)* volume 60 and the December 2021 issue of *Comparative Medicine (CM)* volume 71 mark the end of another year for the AALAS journals. As always, we are incredibly fortunate to have a talented and conscientious support team—graphic artists Brenda Johnson and Zara Garza; scientific editors Amy Frazier, Nick Van De Velde, and Ashlee Vaughn; and editorial production coordinator, Alison Brown. This team together continues to sustain a timely flow of well-edited and professionally presented information through the entire process from manuscript submission to publication. We also thank members of the Editorial Review Board (ERB) for their support in providing timely thorough reviews and solid feedback and suggestions for the improvement of the journals.

Publication statistics for the journals remain relatively steady (Tables 1 and 2). Acceptance rates in 2021 were 46% for *CM* and 65% for *JAALAS* (Tables 1 and 2), similar to those of previous years. The intervals between submission and the first and final decisions on manuscripts are 4.3 and 8.1 weeks, respectively for *CM* and 5.9 and 13.6 weeks, respectively, for *JAALAS*. The longer

processing time for *JAALAS* this year was in some cases due to authors being unable to access their files as a result of COVID-related shut-downs. COVID-related shut-downs also delayed some reviews and responses to critiques. A few unusually long values also contributed to those higher numbers. Two- and five-year impact factors in 2020 were 0.982 and 1.347, respectively, for *CM* and 1.282 and 2.071, respectively, for *JAALAS*. Impact factors for 2021 are not yet available.

We have now also started tracking the time interval between acceptance and online publication. When we began implementing immediate online publication as soon as an article was in final form, we had a considerable backlog of articles awaiting tooling and editing. This backlog was essentially eliminated in 2021, and so we anticipate that this interval may decrease further in 2022. However, some factors contributing to delays are in the hands of authors, who may take considerable time to make corrections or require a second round of editing due to unanswered queries. We therefore ask for and indeed depend on timely responses from editors, reviewers and authors to speed the review and publication processes.

Table 1. Publication Data for *Comparative Medicine*, 2012 to 2021

<i>CM</i>	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Total submissions	171	167	135	155	140	129	142	119	117	112
International submissions	76	86	67	85	59	73	71	58	71	64
Rejected †	75	72	75	71	54	62	65	61	77	60
Withdrawn	3	6	1	1	3	3	1	0	1	1
Transferred to <i>JAALAS</i>	29	23	13	14	12	15	14	9	6	4
Total R-W-T	107	101	89	86	69	80	80	70	84	65
Accepted manuscripts †	64	64	45	72	53	58	52	59	27	46
Total accepted and rejected	139	136	120	143	107	120	117	120	104	106
Acceptance rate	46%	47%	38%	50%	50%	48%	44%	49%	26%	43%
Manuscripts printed	68	60	58	59	62	60	57	54	55	45
Total pages printed	568	548	516	552	512	540	502	578	550	520
Manuscript pages printed		542	506	545	502	477	435	521	487	482
Submission to 1st decision (wks)	4	4	4	4	4	4	4	4	4	4
Submission to final decision (wks)	7	6	7	7	8	8	7	7	6	8
Acceptance to online (wks)	NA	NA	NA	NA	NA	NA	NA	23	24	10
Impact factor 2 yr	1.12	NA	0.74	1.00	0.83	0.59	0.70	1.07	0.98	TBD
Impact factor - 5 yr									1.35	

** Data not available; ††(1) Retraction May 2019

A highlight of every year are the overview articles (Table 3), as these are valued highly by readers and often cited. We urge readers to consider writing and submitting these important articles to the journals, as they perform an important function of summarizing what is known about a topic for readers in a concise and critical manner. One suggestion is for those of you who have presented overviews of various topics at AALAS national

meetings is to convert that presentation into an overview, as Associate Editor Sue Compton did for her AALAS presentation on PCR and RT-PCR in diagnosis and health monitoring. Doing this provides double rewards to speakers for the time invested in preparing the presentation and preserves that information for others who were unable to hear the presentation or who would like to refer back to the information, including for citations.

Table 2. Publication Data for *JAALAS*, 2011 to 2020

<i>JAALAS</i>	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Total submissions	170	179	186	187	162	163	144	170	160	135
International submissions	57	74	74	81	60	64	62	70	55	59
Rejected	64	80	62	62	60	50	43	60	54	36
Withdrawn	5	3	4	5	0	3	1	2	2	3
Transferred to <i>JAALAS</i>	16	17	25	31	36	19	23	17	25	25
Total R-W-T	85	100	91	98	96	72	67	79	81	64
Accepted manuscripts	75	80	92	75	75	77	84	74	90	67
Total accepted and rejected	139	160	154	137	135	127	127	134	144	103
Acceptance rate	54%	50%	60%	55%	56%	61%	66%	55%	63%	65%
Manuscripts printed	79	70	75	82	90	82	68	76	78	81
Total pages printed	872	816	742	820	844	807	737	828	749	708
Manuscripts pages printed	NA	465	512	581	590	581	517	559	618	650
Average pages per manuscript	4	4	5	5	5	5	5	4	6	6
Submission to 1st decision (wks)	7	8	11	8	9	10	9	8	14	14
Submission to final decision (wks)	NA	NA	NA	NA	NA	NA	NA	24	20	20
Acceptance to online publication (wks)	1.15	NA	1.12	0.91	1.20	1.22	1.02	1.24	1.23	TBD
Impact factor - 2 y	0.708	1.145	NA	1.118	0.906	1.195	1.218	1.017	1.235	TBD
Impact factors - 5 y									2.07	

** Data not available; ++(1) Retraction May 2019

Table 3. Overviews published in 2021

<i>JAALAS</i> , volume 60, 2021	Authors	Pages
Pandemic preparations in animal facilities	Lerat, Delis, Bussell & Gonin	244-248
Comparative Medicine, volume 71, 2021		
A one-health perspective for defining and deciphering <i>Escherichia coli</i> pathogenic potential in multiple hosts	Garcia & Fox	3-45
A review of principal studies on the development and treatment of epithelial ovarian cancer in the laying hen <i>Gallus gallus</i>	Pal, Starkweather, Hales & Hales	271-284
Summary and assessment of studies on cardiac aging in nonhuman primates	Huber, Nathanielsz & Clarke	460-465
Comparative Medicine special topic issue: The role of animal research in fighting Covid-19		
Overview of coronaviruses in veterinary medicine	Compton	333-341
Severe acute respiratory syndrome coronavirus-2: Manifestations of disease and approaches to treatment and prevention in humans	Watson, Inagaki & Weinberg	342-358
The role of animal research in pandemic responses	Brockhurst & Villano	359-368
Natural transmission and experimental models of SARSCoV2 infection in animals	Noll, Nascimento & Diel	369-382
Mouse models for the study of SARS-CoV-2 infection	Knight, Montgomery, Fletcher & Baxter	383-397
Hamsters as a model of severe acute respiratory syndrome coronavirus-2	Braxton, Creisher, Ruis-Bedoya, Mulka, Dhakal, Ordonez, Beck, Jain & Villano	398-410
Overview of nonhuman primate models of SARS-CoV-2 infection	Trichel	411-432
A meta-analysis of rhesus macaques, cynomolgus macaques, African green monkeys and ferrets as large animal models for COVID-19	Witt, Green & Winterborn	433-441
Viral and host attributes underlying the origins of zoonotic coronaviruses in bats	Stout, Guo, Millet & Whittaker	442-450

Table 4. Articles and position statements published by professional organizations in 2021

<i>JAALAS</i> , volume 60, 2021	Organization	Pages
Cranial implant care for nonhuman primates in biomedical research	Association of Primate Veterinarians	496-501
Guidelines for the judicious use of antibiotics	Association of Primate Veterinarians	601-606
Guidelines for post-research retirement of nonhuman primates	Association of Primate Veterinarians	607-608

Table 5. JAALAS—Top 10 Total Downloads as of 2021

Article	Live in PMC	Total downloads			
		2018	2019	2020	2021
Gao P, Dang CV, Watson J. 2008. Unexpected antitumorigenic effect of fenbendazole when combined with supplementary vitamins. <i>47</i> :37–40.	6/12/2009	7666	137397	101538	88309
Turner PV, Brabb T, Pekow C, Vasbinder MA. 2011. Administration of substances to laboratory animals: routes of administration and factors to consider. <i>50</i> :600–613.	3/1/2012	45195	43891	46910	57243
Turner PV, Pekow C, Vasbinder MA, Brabb T. 2011. Administration of substances to laboratory animals: equipment considerations, vehicle selection, and solute preparation. <i>50</i> :614–627.	3/1/2012	8685	8721	9782	8487
Ray MA, Johnston NA, Verhulst S, Trammell RA, Toth LA. 2010. Identification of markers for imminent death in mice used in longevity and aging research. <i>49</i> :282–288.	11/1/2010	**	**	11859	8042
Tannenbaum JT, Bennett BT. 2015. Russell and Burch's 3Rs then and now: The need for clarity in definition and purpose. <i>54</i> :120–132.	9/1/2015	**	**	7212	7793
Duran-Struock R, Dysko RC. 2009. Principles of bone marrow transplantation (BMT): providing optimal veterinary and husbandry care to irradiated mice in BMT studies. <i>48</i> :11–22.	7/1/2009	10265	8758	7655	6294
Marx JO, Vudathala D, Murphy L, Rankin F, Hankenson FC. 2014. Antibiotic administration in the drinking water of mice. <i>53</i> :301–306	11/1/2014	10265	8758	7655	7179
France LK, Vermillion MS, Garrett CM. 2018. Comparison of direct and indirect methods of measuring arterial blood pressure in healthy male rhesus macaques (<i>Macaca mulatta</i>). <i>57</i> :64–69	7/1/2018	**	**	**	5217
Lelovas PP, Kostomitsopoulos NG, Xanthos TT. 2014. A comparative anatomic and physiologic overview of the porcine heart. <i>53</i> :432–438	3/1/2015	**	**	**	4924
Redelsperger IM, Taldone T, Riedel ER, Lephed ML, Lipman NS, Wolf FR. 2014. Stability of doxycycline in feed and water and minimal effective doses in tetracycline-inducible systems. <i>55</i> :467–474	1/1/2016	**	**	**	4914

*Data collected from Pub Med Central

** Not on top ten downloaded list for indicated year

Table 6. Comparative Medicine—Top 10 Total Downloads as of 2021

Article	Live in PMC	Total downloads			
		2018	2019	2020	2021
Novak MA, Meyer JS. 2009. Alopecia: possible causes and treatments, particularly in captive nonhuman primates. <i>59</i> :18–26.	8/1/2009	8621	6724	10766	14972
O'Connell KE, Mikkola AM, Stepanek AM, Vernet A, Hall CD, Sun CC, Yildirim W, Staropoli JF, Lee JT, Brown DE. 2015. Practical murine hematopathology: a comparative review and implications for research. <i>65</i> :96–113.	10/1/2015	**	8472	13109	13465
Wafer LN, Whitney JC, Jensen VB. 2015. Fish lice (<i>Argulus japonicus</i>) in goldfish (<i>Carassius auratus</i>). <i>65</i> :93–95.	10/1/2015	**	5675	7444	13263
Graham ML, Janecek JL, Kittredge JA, Hering BJ, Schuurman HJ. 2011. The streptozotocin-induced diabetic nude mouse model: differences between animals from different sources. <i>61</i> :356–360.	2/1/2012	10205	10941	11035	10308
Lynch WJ, Nicholson KL, Dance ME, Morgan RW, Foley PL. 2010. Animal models of substance abuse and addiction: implications for science, animal welfare, and society. <i>60</i> :177–188.	12/1/2010	9679	7544	8052	8670
Autieri CR, Miller CL, Scott KE, Kilgore A, Papscoe VA, Garner MM, Haupt JL, Bakthavatchalu V, Muthupalani, S, Fox JG. 2015. Systemic coronaviral disease in 5 ferrets. <i>65</i> :508–516.	6/1/2016	**	**	**	7083
Hankenson FC, Marx JO, Gordon CJ, David JM. 2018. Effects of rodent thermoregulation on animal models in the research environment. <i>61</i> :339–345	2/1/2012	4459	5332	7410	5618
Bagi CM, Berryman E, Moalli MR. 2011. Comparative bone anatomy of commonly used laboratory animals: Implications for drug discovery. <i>61</i> :76–85.	8/1/2011	**	**	**	5149
Toth LA, Bhargava P. 2013. Animal models of sleep disorders. <i>63</i> :91–104.	10/1/2013	4126	3939	4336	4768
Collins DE, Reuter JD, Rush HG, Villano JS. 2017. Viral vector biosafety in laboratory animal research. <i>67</i> :215–221.	12/1/2017	**	**	**	4471

** Not on top ten downloaded list for indicated year

Table 7. JAALAS—Top 11 articles with highest overall number of citations *

Article	Publication year	Total number of citations as of			
		March, 2019	January, 2020	February, 2021	January, 2022
Turner PV, Brabb T, Pekow C, Vasbinder MA. Administration of substances to laboratory animals: routes of administration and factors to consider. <i>50</i> :600–613.	2011	194	264	366	479
Portfors CV. Types and functions of ultrasonic vocalizations in laboratory rats and mice. <i>46</i> :28–34.	2007	260	311	349	387
Tannenbaum J, Bennett BT. Russell and Burch's 3Rs then and now: the need for clarity in definition and purpose. <i>54</i> :120–132.	2015	63	98	141	206
Wilson JM, Bunte RM, Carty AJ. Evaluation of rapid cooling and tricainemethanesulfonate (MS222) as methods of euthanasia in zebrafish (<i>Danio rerio</i>). <i>48</i> :785–789.	2009	113	135	163	188
Matsumiya LC, Sorge RE, Sotocinal SG, Tabaka JM, Wieskopf JS, Zaloum A, King OD, Mogil JS. Using the mouse grimace scale to reevaluate the efficacy of postoperative analgesics in laboratory mice. <i>51</i> :42–49.	2012	86	96	118	138
Hess SE, Rohr S, Dufour BD, Gaskill BN, Pajor EA, Garner JP. C57BL/6J mice given more naturalistic nesting materials build better nests. <i>47</i> :25–31.	2008	72	88	105	126
Heffner HE, Heffner RS. Hearing ranges of laboratory animals. <i>46</i> :20–22.	2007	56	83	105	125
Duran-Struuck R, Dysko RC. Principles of bone marrow transplantation (BMT): Providing optimal veterinary and husbandry care to irradiated mice in BMT studies. <i>48</i> :11-22	2009	72	85	95	117
Foley PL, Liang H, Crichlow AR. Evaluation of a sustained-release formulation of buprenorphine for analgesia in rats. <i>50</i> :198-204	2011	**	**	**	112
Fernandez I, Pena A, Del Teso N, Perez V, Rodriguez-Cuesta J. Clinical biochemistry parameters in C57BL/6J mice after blood collection from the submandibular vein and retroorbital plexus. <i>49</i> :202–206.	2010	**	**	**	92
Guillen J. FELASA Guidelines and Recommendations. <i>51</i> :311-321.	2012	**	**	**	92

Table 8. Comparative Medicine—Top 10 articles with overall highest number of citations *

Article	Publication year	Total number of citations as of			
		March, 2019	January, 2020	February, 2021	January, 2022
Cray C, Zaias J, Altman NH. Acute phase response in animals: a review. <i>59</i> :517–526.	2009	287	348	401	461
Lelovas PP, Xanthos TT, Thoma SE, Lyritis GP, Dontas IA. The laboratory rat as an animal model for osteoporosis research. <i>58</i> :424–430.	2008	203	247	282	313
Mansfield K. Marmoset models commonly used in biomedical research. <i>53</i> :383–392.	2003	175	194	209	229
Abbott DH, Barnett DK, Colman RJ, Yamamoto ME, Schultz-Darken NJ. Aspects of common marmoset basic biology and life history important for biomedical research. <i>53</i> :339–350.	2003	139	149	166	191
Dyson MC, Alloosh M, Vuchetich JP, Mokelke EA, Sturek M. Components of metabolic syndrome and coronary artery disease in female Ossabaw swine fed excess atherogenic diet. <i>56</i> :35–45.	2006	124	137	139	152
Callicott RJ, Womack JE. Real-time PCR for measurement of mouse telomeres. <i>56</i> :17–22.	2006	110	122	131	143
Martini L, Fini M, Giavaresi G, Giardino R. Sheep model in orthopedic research: a literature review. <i>51</i> :292–299.	2001	92	109	123	135
Nemzek JA, Hugunin KM, Opp MR. Modeling sepsis in the laboratory: merging sound science with animal well-being. <i>58</i> :120–128.	2008	**	98	115	128
Arras M, Autenried P, Rettich A, Spaeni D, Rüllicke T. Optimization of intraperitoneal injection anesthesia in mice: drugs, dosages, adverse effects, and anes-thesia depth. <i>51</i> :443–456.	2001	93	102	112	123
Hufeldt MR, Nielsen DS, Vogensen FK, Midtvedt T, Hansen AK. Variation in the gut microbiota of laboratory mice is related to both genetic and environmental factors. <i>60</i> :336–347.	2010	**	**	**	123

*Data collected from Web of Science

** Not on top ten downloaded list for indicated year

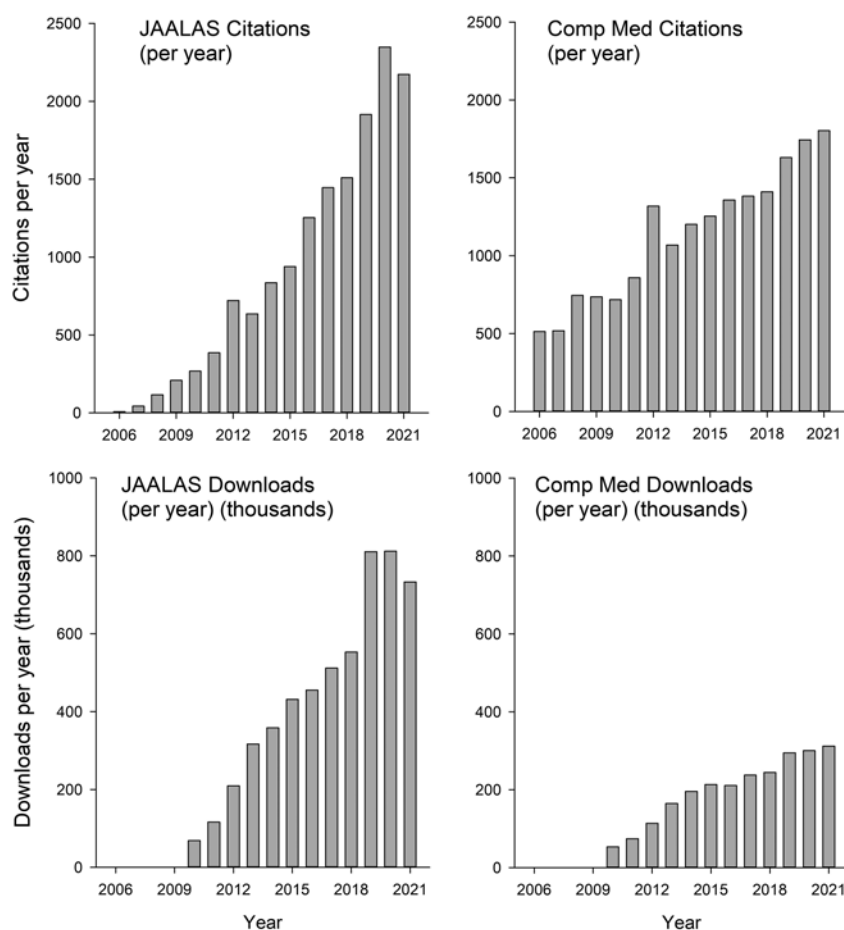


Figure 1. Number of citations and PMC downloads for JAALAS and Comparative Medicine.

This year 9 overviews focused on animal models and COVID were published in a special topic issue of *CM* that was assembled by guest editor Jason Villano. This impressive issue summarizes much of the information available on these topics at the time. Dr. Villano is currently guest-editing a second special topic issue that will focus on comparative features of COVID-19 infection. This issue is targeted for publication in December. Another special topic issue is being planned by Dr. Jeremy Turner on extrinsic environmental factors in the vivarium. The target publication date for this special topic issue has not yet been finalized. Readers are invited to suggest ideas for special topic issues or overviews.

Another important addition to the literature would be meta-analysis of studies on similar topics with conflicting outcomes. The journals would welcome submission of Cochrane-type structured reviews of key areas of interest to our readers. Topics could include bedding evaluation, treatment for mouse dermatitis, alopecia in non-human primates, concentrations of CO₂ for euthanasia, trio and pair breeding success, analgesic dosage regimens, cage size, effects of housing density effects on rodent well-being, effective enrichment devices and other similar topics.

In 2021 *CM* had 311,592 retrievals (HTML full text views/article PDF downloads) from PMC, and *JAALAS* had 732,797 retrievals (Figure 1, Tables 5 and 6). The high number of down-

loaded articles for the 2 journals truly underscores the value of the AALAS publications. Articles from both journals are downloaded hundreds of thousands of times each year, and many articles have been downloaded thousands of times a year for many years after the publication date. These data show that even though the journal impact factors are not high, the articles are used by the community we serve and are durable in terms of content.

The number of citations from both journals also remains relatively consistent from year to year (Figure 1, Tables 7 to 10). The top ten lists of cited and downloaded articles have several new additions this year (Tables 5-10). The general lack of overlap between the top-ten cited and downloaded lists suggests that different audiences are using these publications, some with focus on publishing new research (the cited articles) and others on information (the downloaded articles).

Formal staff and Editorial Review Board meetings were not held this year at the annual AALAS meeting due to low attendance by ERB members. However, information continues to be shared via email.

As always, we welcome suggestions for improvements in the journals and encourage readers and authors to give us your opinions, perspective, concerns, and suggestions. Our readers, authors and reviewers have our continued thanks for your support in the development and growth of the journals.