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BioMedCentral (BMC) 2019 – 2020

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BioMedCentral (BMC) 2019 – 2020

by Anqi Shi & Heather Morrison

Key points

- Open access commercial publishing pioneer BMC is now wholly owned by a private company with a portfolio including lines of business that derive revenue from journal subscriptions, book sales, and textbook sales and rentals
- Two former BMC fully OA journals, listed in DOAJ from 2014 – 2018 as having CC-BY licenses, are now hybrid and listed on the Springer website and have disappeared from the BMC website
- 67% of BMC journals with APCs in 2019 and 2020 increased in price and 11% decreased in price.
- Journals with price increases had a higher average APC in 2019, i.e. more expensive journals appear to be more likely to increase in price

Abstract

Founded in 2000, BioMedCentral (BMC) was one of the first commercial (OA) publishers and a pioneer of the article processing charges (APC) business model. BMC was acquired by Springer in 2008. In 2015, Springer was acquired by the Holtzbrinck Publishing Group in 2015 and became part of SpringerNature. In other words, BMC began as an OA publisher and is now one of the imprints or business lines of a company whose other lines of business include sales of journal subscriptions and scholarly books and textbook sales and rentals. Of the 328 journals actively published by BMC in 2020, 91% charge APCs. The average APC was 2,271 USD, an increase of 3% over 2019. An overall small increase in average APC masks substantial changes at the individual journal level. As first noted by Wheatley (2016), BMC price changes from one year to the next are a mix of increases, decreases, and retention of the same price. In 2020, 67% of the 287 journals for which we have pricing in USD for both 2019 and 2020 increased in price; 11% decreased in price, and 22% did not change price. It appears that it is the more expensive journals that are more likely to increase in price. The average 2019 price of the journals that increased in 2020 was 2,307 USD, 18% higher than the 2019 average of 1,948 USD for journals that decreased in price. 173 journals increased in price by 4% or more, well above the inflation rate. 39 journals increased in price by 10% or more; 13 journals increased in price by 20% or more. Also in 2020, there are 11 new journals, 11 journals ceased publication, 5 titles were transferred to other publishers, 2 journals changed from no publication fee to having an APC, and 3 journals dropped their APCs. Two journals formerly published fully OA by BMC are no longer listed on the BMC website, but are now listed as hybrid on the Springer website. This is a small portion of the total but is worth noting as the opposite direction of the transformative (from subscriptions to OA) officially embraced by SpringerNature.

Detail

History and assumptions about OA transformation

BioMedCentral (BMC) was founded in 2000 by publishing entrepreneur Vitek Tracz. In an interview with Poynder (2005), Tracz described the reason for founding BMC and the role of this publisher in OA as follows:

“We believed the data would have to be free, but it also became clear that—for the moment at least—authors couldn't place their papers in the public domain without some processes that cost money. What was also clear was that authors are more interested in publishing than readers are in reading. We also knew that authors have always been prepared to pay for having their papers published by paying page charges and paying for color pictures, etc. So we said: "OK, we will turn the current model upside down and offer the research articles free to readers and charge for services to authors. We will take their papers, mark them up, find referees to review them, and generally act as an intermediary." Of course, the charges are not really to authors personally, but rather to the funders of the research or the institutions where the authors work. We soon realized that such a business model could be very effective”.

As Tracz also noted in this interview, at first BMC did not know what the business model would be. In 2002, the company introduced a processing charge of \$500 for accepted articles published in its nearly 60 online journals (Quint, 2002).

As of 2005, BMC's revenue did not yet meet its expenses and it was anticipated that BMC would break even by 2006 (Poynder, 2005). In October 2008, it was announced that BMC (had been acquired by Springer Science+Business Media, one of the largest publishers in the world (Merkel-Sobotta, 2008). Springer was acquired by the Holtzbrinck Publishing Group, owner of Macmillan Science and Education which includes Nature, creating a new company called SpringerNature with over 13,000 employees in 50 countries and an annual turnover of 1.5 billion EUR (SpringerNature, 2015). According to Holtzbrinck website <https://www.holtzbrinck.com/>, Holtzbrinck is a family owned business with headquarters in Stuttgart, Germany. While BMC was developed to achieve OA, it is important to understand that the Holtzbrinck portfolio includes publishing imprints that sell subscriptions to journals and books, and the Macmillan Education division also sells and rents textbooks to students.

Transformation to versus from OA

SpringerNature (2020) “welcomes the decision from cOAlition S to support Transformative Journals” and commits to transforming all Springer owned, English language titles to OA.

2 journals, the *Journal of Diabetes & Metabolic Disorders* and the *Journal of Environmental Health Science and Engineering*, both formerly BMC fully OA titles, included in DOAJ from 2014 – 2018 according to our data with a CC-BY license, are now hybrid. Both titles are now listed on Springer, not BMC, and both are published by Springer on behalf of the Tehran University of Medical Sciences.

According to the SpringerNature website (2020) <https://www.springernature.com/gp/open-research/policies/journal-policies/apc-waiver-countries>, “Springer Nature offers APC waivers to papers whose corresponding authors are based in countries [classified by the World Bank](#) as low-income economies as of July 2019”, however “APC waivers are not offered for open access publication in

Springer Nature subscription journals offering a hybrid option, as authors without the funds to publish open access in these journals can publish via the subscription route. Iran is classified as a low-income economy by the World Bank. If these titles had remained fully OA BMC titles, authors from Iran and other developing countries would have been entitled to APC waivers. Transferring the titles from BMC to Springer and changing their status from fully OA to hybrid could be interpreted as a way of avoiding actual support for authors from developing countries while continuing to give the appearance of doing so.

SpringerNature (2020), in welcoming PlanS and transformation to OA, states that this is “subject to acceptability of the yet to be published transparency requirements”. In the case of these two journals, transparency requirements that would be helpful in the OA transformation:

- a requirement to report transformation away from as well as towards OA
- financial details about the journals, e.g. subscriptions and APC revenues and payers; this would be helpful to those publishing journals like these and researchers comparing models to support such journals for OA

Data sources

- The spreadsheet [2020 Springer Nature fully open access journals](#) was downloaded from the SpringerNature website on May 7, 2020. This is the main source of 2020 data. Pricing is listed in 3 currencies: GBP, EUR, and USD. USD was selected for analysis. 2 journals with data in only one currency and no USD price were excluded from the price comparison.
- Where the SpringerNature spreadsheet states “see website”, information is from the journal’s website.
- Data from 2019 was screen-scraped from a price list on the BMC website on April 5, 2019. Additional information can be found in the documentation for OA Main 2019 Morrison (2019).

Status summary in 2020

Table 1: 2020 BioMedCentral Journal Publication and APC status summary

	Status	# journals	Percent
	Has APC	300	87%
	No publication fee	28	8%
	Total active BMC titles	328	95%
	Ceased publication	11	3%
	Transferred to another publisher	5	1%
	Now hybrid**	2	1%
	Total**	346	100%

** total excludes 1 journal previously listed as ‘title not found’ found to be fused with another journal title in our list this year and 45 journal titles not found.

*** 2 journal titles that were fully OA in 2019 are now hybrid

Status changes 2019-2020

In 2020, the number of fully OA journals actively published by BMC is 328, slightly less than 330 for 2019. Of the 328 active BMC titles in 2020, as illustrated in the table below, over 90 percent of journals have an APC amount. 9% have no publication fee.

		Status	Number	Percentage
2020	No publication fee		28	9%
		APC	300	91%
		Total	328*	100%
2019	No publication fee		25	8%
		APC	305	92%
		Total	330**	100%

*The total includes 1 journal listed only in EUR price but excluded from central tendency analysis to avoid exchange rate issue.

** The total includes one journal only list in GBP price, but excluded from the central tendency analysis to avoid exchange rate issue.

Of the 28 titles without publication fees in 2020, 22 journals retained no publication fee from 2019 to 2020, 3 were newly added this year with no publication fee and 3 changed from a specific APC to no publication fee from 2019 to 2020.

Chart 1. BMC active journals by APC status 2019-2020 (APC, no publication fee)

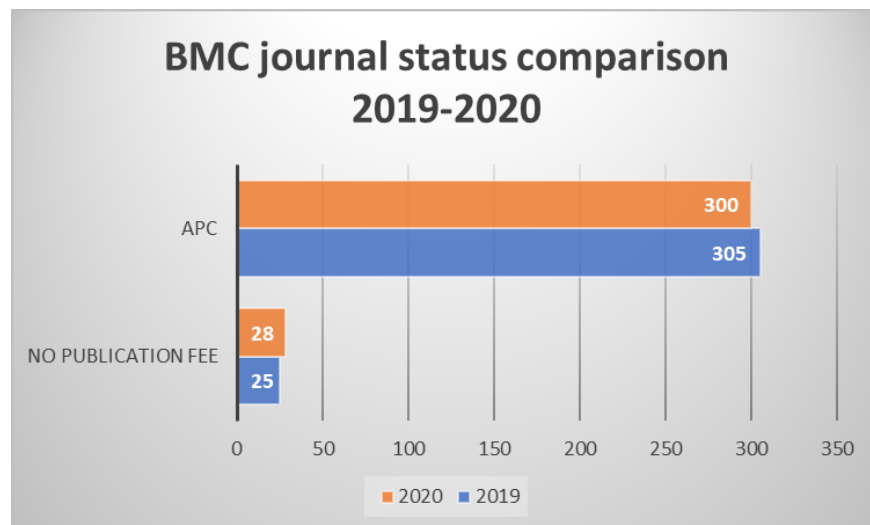


Table 3. BMC status changes 2019 – 2020 (315 journals*)

Status	Number	Percentage
Fee to free	3	1%
Keep no publication fee	22	7%
free to fee	2	1%
Keep APC	288	91%
Total	315	100%

*the analysis contains all journals have APCs or no publication fee in both 2019 and 2020

In table 3, we can observe that most of the journals (91%) keep the same status as APC from 2019 to 2020. A few journals have no publication fee, 3 journals changed from fee to free while 2 journals changed from free to fee.

Pricing trend 2019-2020

Table 4: 2020 and 2019 BioMedCentral APC central tendency in USD

	2019	2020	% increase
Average	2,200	2,271	3%
Median	2,170	2,290	6%

The table above provides the central tendencies for all BMC titles with an APC for either 2020 (298 journals) or 2019 (304 journals) in USD. There has been a 3% increase in the average APC and a 6% increase in the median APC.

Price changes 2019 – 2020

There are 287 journals for which we have an APC amount in USD in both 2019 and 2020.

Table 5 BioMedCentral Price change 2019-2020 (287 journals)

Direction of change*	Frequency	Percent%	Cumulative percent%
decrease	31	11	11
same	64	22	33
increase	192	67	100
Total	287	100	

* Note: Does not include change to/from no publication fee

As illustrated in Table 5 above, more than two-thirds of these journals (67%) increased prices in USD from 2019 to 2020, while more than a fifth (22%) decreased in price and a few (11%) did not change in price. Compare to the trend from 2018 to 2019 observed by Pashaei & Morrison (2019), the price change pattern is almost the same. Around two-thirds increase price and about 10 percent decrease.

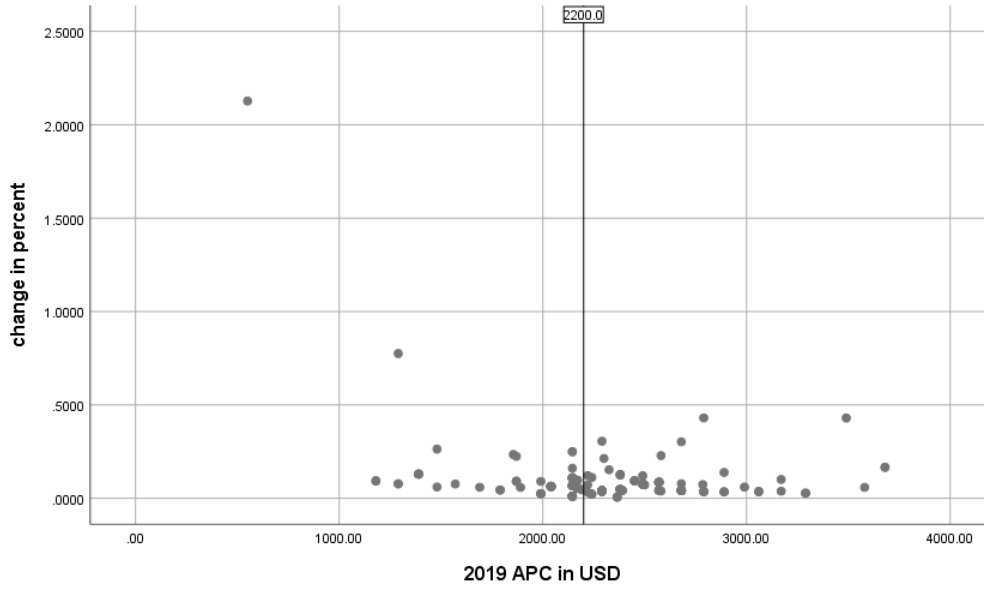


Chart 2. The price change in percentage of 2019 journals with price increases

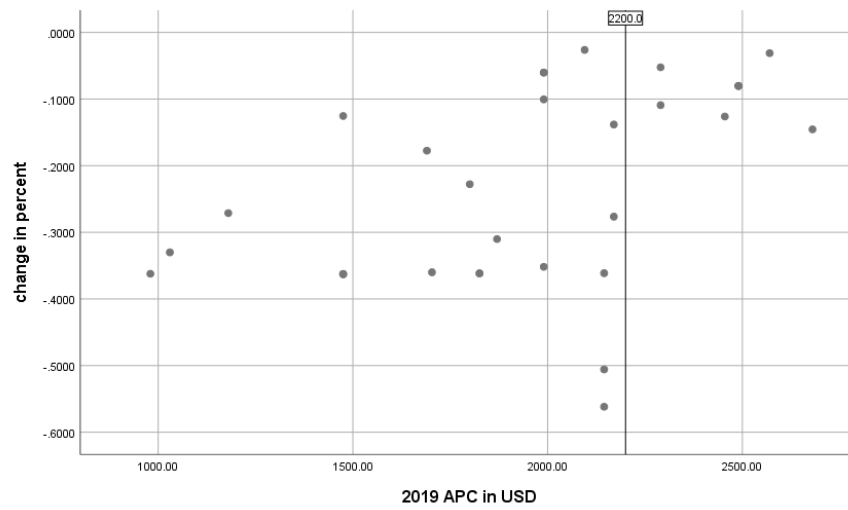


Chart 3. The price change in percentage of 2019 journals with price decreases

Table 6 average of journals that increased in price 2019-2020

	Minimum	Maximum	Average
2019 APC (USD)	550	3,680	2,307
2020 APC (USD)	1,290	4,990	2,490
price change \$	15	1,500	184
price change%	0.6%	213%	9%

Table 7 average of journals that decreased in price 2019-2020

	Minimum	Maximum	Average
2019 APC (USD)	980	2,680	1,948
2020 APC (USD)	625	2,490	1,531
price change \$	-1,205	-55	-417
price change%	-56%	-3%	-23%

Among journals that increased their APC:

From table 6, the 2019 prices of journals with price increases ranged from 550 USD (well below average) to 3,680 USD (well above average). The 2019 average price of these journals was 2,307 USD, slightly above the 2019 average of 2,200 USD. In other words, the number of journals with below-average APCs increased in price is almost the same as journals with price increases had above-average APCs in 2019. However, the price increase for each journal varies. The biggest increase doubled the price and 13 journals increased their price by more than 20%.

Among journals that decreased their publication fee:

The 2019 prices of journals with price decreases ranged from 980 USD to 2,680 USD. The 2019 average price of these journals was 1,948 USD, lower than the 2019 average of 2,200 USD. From the chart 3 above, it is obvious that most of the journals that decreased APCs are under the average price of 2,200 USD in 2019. Only a few journals with above-average APCs decreased in price. After the decrease in price, the price of these journals still over 1,500 USD in 2020.

Table 8 below lists all BioMedCentral journals with APC changes from 2019 – 2020 in descending order by % change. As can be observed from the table, many of the increases and decreases are quite large, from a -56% drop in price to a 213% increase in APCs. Comparing the number between journals with price decrease and journals with price increase, there are more journals that increased in price and the price change is relatively high.

Table 8: 2019 -2020 price changes (amount and percentage) by journal title

Journal title	2019 APC (USD)	2020 APC (USD)	change in price (USD)	change in percentage
Journal of Animal Science and Biotechnology	550	1,720	1,170	213%
Journal of Medical Case Reports	1,290	2,290	1,000	78%
Microbiome	2,790	3,990	1,200	43%
Genome Biology	3,490	4,990	1,500	43%
Acta Neuropathologica Communications	2,290	2,990	700	31%
Cell Communication and Signaling	2,680	3,490	810	30%
Marine Biodiversity Records	1,480	1,870	390	26%
BMC Neuroscience	2,145	2,680	535	25%
Mobile DNA	2,145	2,680	535	25%
Israel Journal of Health Policy Research	1,855	2,290	435	23%
Alzheimer's Research & Therapy	2,580	3,170	590	23%
Health Economics Review	1,870	2,290	420	22%
Clinical and Translational Allergy	2,300	2,790	490	21%
Molecular Cancer	3,680	4,290	610	17%
Genome Medicine	3,680	4,290	610	17%
Journal of the International Society of Sports Nutrition	2,145	2,490	345	16%
Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine	2,325	2,680	355	15%
Critical Care	2,890	3,290	400	14%
BMC Nutrition	1,390	1,570	180	13%
BMC Research Notes	1,390	1,570	180	13%
BMC Rheumatology	1,390	1,570	180	13%
Cancer Nanotechnology	1,390	1,570	180	13%
AIDS Research and Therapy	2,380	2,680	300	13%
Fluids and Barriers of the CNS	2,380	2,680	300	13%
International Journal for Equity in Health	2,380	2,680	300	13%
International Journal of Health Geographics	2,380	2,680	300	13%
Environmental Health	2,220	2,490	270	12%
The Journal of Headache and Pain	2,490	2,790	300	12%
Plant Methods	2,240	2,490	250	11%
Allergy, Asthma & Clinical Immunology	2,145	2,380	235	11%
BMC Immunology	2,145	2,380	235	11%
BMC Medical Genomics	2,145	2,380	235	11%
BMC Plant Biology	2,145	2,380	235	11%
Infectious Agents and Cancer	2,145	2,380	235	11%
Parasites & Vectors	2,145	2,380	235	11%
BMC Medicine	3,170	3,490	320	10%
European Journal of Medical Research	2,170	2,380	210	10%
Movement Ecology	2,170	2,380	210	10%

Table 8: 2019 -2020 price changes (amount and percentage) by journal title

Journal title	2019 APC (USD)	2020 APC (USD)	change in price (USD)	change in percentage
Health Research Policy and Systems	2,450	2,680	230	9%
Human Resources for Health	2,450	2,680	230	9%
Perioperative Medicine	2,450	2,680	230	9%
BMC Zoology	1,180	1,290	110	9%
Crime Science	1,180	1,290	110	9%
Cilia	1,870	2,040	170	9%
Environmental Evidence	1,870	2,040	170	9%
Source Code for Biology and Medicine	1,870	2,040	170	9%
Pilot and Feasibility Studies	1,990	2,170	180	9%
Annals of Clinical Microbiology and Antimicrobials	2,570	2,790	220	9%
Antimicrobial Resistance and Infection Control	2,570	2,790	220	9%
Behavioral and Brain Functions	2,570	2,790	220	9%
Biology of Sex Differences	2,570	2,790	220	9%
Epigenetics & Chromatin	2,570	2,790	220	9%
Journal of Inflammation	2,570	2,790	220	9%
Molecular Cytogenetics	2,570	2,790	220	9%
Nutrition & Metabolism	2,570	2,790	220	9%
Respiratory Research	2,570	2,790	220	9%
Journal of Neuroinflammation	2,680	2,890	210	8%
BMC Psychology	1,290	1,390	100	8%
Journal of Eating Disorders	1,290	1,390	100	8%
3D Printing in Medicine	1,570	1,690	120	8%
Biomarker Research	2,490	2,680	190	8%
Implementation Science	2,490	2,680	190	8%
Journal of Ethnobiology and Ethnomedicine	2,490	2,680	190	8%
Radiation Oncology	2,490	2,680	190	8%
Reproductive Biology and Endocrinology	2,490	2,680	190	8%
Gut Pathogens	2,490	2,680	190	8%
BMC Biology	2,785	2,990	205	7%
Diabetology & Metabolic Syndrome	2,220	2,380	160	7%
Journal of Cardiovascular Magnetic Resonance	2,500	2,680	180	7%
BMC Genomics	2,145	2,290	145	7%
BioPsychoSocial Medicine	2,145	2,290	145	7%
BMC Developmental Biology	2,145	2,290	145	7%
BMC Molecular Biology	2,145	2,290	145	7%
Journal of Foot and Ankle Research	2,145	2,290	145	7%
Journal of Otolaryngology : Head and Neck Surgery	2,145	2,290	145	7%
BMC Biophysics	2,040	2,170	130	6%
BMC Genetics	2,040	2,170	130	6%

Table 8: 2019 -2020 price changes (amount and percentage) by journal title

Journal title	2019 APC (USD)	2020 APC (USD)	change in price (USD)	change in percentage
Irish Veterinary Journal	2,040	2,170	130	6%
pneumonia	2,040	2,170	130	6%
Research Integrity and Peer Review	2,040	2,170	130	6%
Sleep Science and Practice	2,040	2,170	130	6%
Systematic Reviews	2,040	2,170	130	6%
BMC Chemistry	2,040	2,170	130	6%
Fertility Research and Practice	2,040	2,170	130	6%
Lipids in Health and Disease	2,040	2,170	130	6%
Women's Midlife Health	2,040	2,170	130	6%
BMC Medical Ethics	1,480	1,570	90	6%
Clinical Epigenetics	2,990	3,170	180	6%
BMC Emergency Medicine	1,690	1,790	100	6%
Journal of Hematology & Oncology	3,580	3,790	210	6%
Journal of Cheminformatics	1,890	2,000	110	6%
Addiction Science and Clinical Practice	2,170	2,290	120	6%
Asthma Research and Practice	2,170	2,290	120	6%
Bioelectronic Medicine	2,170	2,290	120	6%
BMC Ecology	2,170	2,290	120	6%
BMC Nephrology	2,170	2,290	120	6%
BMC Oral Health	2,170	2,290	120	6%
BMC Pregnancy and Childbirth	2,170	2,290	120	6%
Cancers of the Head & Neck	2,170	2,290	120	6%
Clinical and Molecular Allergy	2,170	2,290	120	6%
Clinical Diabetes and Endocrinology	2,170	2,290	120	6%
Proteome Science	2,170	2,290	120	6%
Translational Medicine Communications	2,170	2,290	120	6%
Tropical Diseases, Travel Medicine and Vaccines	2,170	2,290	120	6%
Infectious Diseases of Poverty	2,170	2,290	120	6%
BMC Surgery	2,380	2,490	110	5%
Journal of Orthopaedic Surgery and Research	2,380	2,490	110	5%
BMC Complementary and Alternative Medicine	2,380	2,490	110	5%
BMC Geriatrics	2,380	2,490	110	5%
BMC Medical Research Methodology	2,380	2,490	110	5%
BMC Musculoskeletal Disorders	2,380	2,490	110	5%
BMC Neurology	2,380	2,490	110	5%
Cancer & Metabolism	2,380	2,490	110	5%
Child and Adolescent Psychiatry and Mental Health	2,380	2,490	110	5%
Experimental Hematology & Oncology	2,380	2,490	110	5%
International Breastfeeding Journal	2,380	2,490	110	5%

Table 8: 2019 -2020 price changes (amount and percentage) by journal title

Journal title	2019 APC (USD)	2020 APC (USD)	change in price (USD)	change in percentage
Journal of Cardiothoracic Surgery	2,380	2,490	110	5%
Journal of Occupational Medicine and Toxicology	2,380	2,490	110	5%
Journal of Ovarian Research	2,380	2,490	110	5%
Microbial Cell Factories	2,380	2,490	110	5%
Patient Safety in Surgery	2,380	2,490	110	5%
Stem Cell Research & Therapy	2,380	2,490	110	5%
Substance Abuse Treatment, Prevention, and Policy	2,380	2,490	110	5%
BMC Infectious Diseases	2,190	2,290	100	5%
Animal Biotelemetry	1,790	1,870	80	4%
Porcine Health Management	1,790	1,870	80	4%
Diagnostic Pathology	2,570	2,680	110	4%
Harm Reduction Journal	2,570	2,680	110	4%
Orphanet Journal of Rare Diseases	2,570	2,680	110	4%
Reproductive Health	2,570	2,680	110	4%
BMC Health Services Research	2,390	2,490	100	4%
BMC Public Health	2,390	2,490	100	4%
Cancer Cell International	2,680	2,790	110	4%
Cardiovascular Ultrasound	2,680	2,790	110	4%
Genes & Nutrition	2,680	2,790	110	4%
International Journal of Pediatric Endocrinology	2,680	2,790	110	4%
Journal of NeuroEngineering and Rehabilitation	2,680	2,790	110	4%
Molecular Medicine	2,680	2,790	110	4%
Nutrition Journal	2,680	2,790	110	4%
Arthritis Research & Therapy	2,680	2,790	110	4%
Biotechnology for Biofuels	2,680	2,790	110	4%
Human Genomics	2,680	2,790	110	4%
Journal of Nanobiotechnology	2,680	2,790	110	4%
Pediatric Rheumatology	2,680	2,790	110	4%
Basic and Clinical Andrology	2,290	2,380	90	4%
BMC Anesthesiology	2,290	2,380	90	4%
BMC Biotechnology	2,290	2,380	90	4%
BMC Medical Genetics	2,290	2,380	90	4%
BMC Medical Imaging	2,290	2,380	90	4%
BMC Medical Informatics and Decision Making	2,290	2,380	90	4%
BMC Palliative Care	2,290	2,380	90	4%
BMC Pediatrics	2,290	2,380	90	4%
BMC Pharmacology and Toxicology	2,290	2,380	90	4%
BMC Psychiatry	2,290	2,380	90	4%
BMC Veterinary Research	2,290	2,380	90	4%

Table 8: 2019 -2020 price changes (amount and percentage) by journal title

Journal title	2019 APC (USD)	2020 APC (USD)	change in price (USD)	change in percentage
Health and Quality of Life Outcomes	2,290	2,380	90	4%
International Journal of Mental Health Systems	2,290	2,380	90	4%
Journal of Biological Engineering	2,290	2,380	90	4%
Journal of Pharmaceutical Policy and Practice	2,290	2,380	90	4%
Molecular Brain	2,290	2,380	90	4%
Population Health Metrics	2,290	2,380	90	4%
Skeletal Muscle	2,290	2,380	90	4%
Thrombosis Journal	2,290	2,380	90	4%
World Journal of Surgical Oncology	2,290	2,380	90	4%
International Journal of Emergency Medicine	2,290	2,380	90	4%
BMC Pulmonary Medicine	2,290	2,380	90	4%
International Journal of Behavioral Nutrition and Physical Activity	2,580	2,680	100	4%
Particle and Fibre Toxicology	3,170	3,290	120	4%
Cardiovascular Diabetology	3,060	3,170	110	4%
Molecular Autism	3,060	3,170	110	4%
Biological Procedures Online	2,790	2,890	100	4%
Cell Division	2,790	2,890	100	4%
Immunity & Ageing	2,790	2,890	100	4%
Journal of Translational Medicine	2,890	2,990	100	3%
World Journal of Emergency Surgery	2,890	2,990	100	3%
Journal of Pharmaceutical Health Care and Sciences	2,220	2,290	70	3%
Breast Cancer Research	3,290	3,380	90	3%
Journal of Experimental & Clinical Cancer Research	3,290	3,380	90	3%
Algorithms for Molecular Biology	1,990	2,040	50	3%
BMC Proceedings	1,990	2,040	50	3%
Cellular & Molecular Biology Letters	1,990	2,040	50	3%
Biological Research	2,240	2,290	50	2%
Malaria Journal	2,240	2,290	50	2%
BMC Endocrine Disorders	2,145	2,170	25	1%
BMC Family Practice	2,145	2,170	25	1%
BMC Medical Education	2,145	2,170	25	1%
BMC Women's Health	2,145	2,170	25	1%
Emerging Themes in Epidemiology	2,145	2,170	25	1%
Journal of Health, Population and Nutrition	2,145	2,170	25	1%
Public Health Reviews	2,145	2,170	25	1%
Acta Veterinaria Scandinavica	2,365	2,380	15	1%
Frontiers in Zoology	2,365	2,380	15	1%
International Journal of Retina and Vitreous	1,000	1,000	0	0%

Table 8: 2019 -2020 price changes (amount and percentage) by journal title

Journal title	2019 APC (USD)	2020 APC (USD)	change in price (USD)	change in percentage
Sustainable Earth	990	990	0	0%
Geochemical Transactions	1,140	1,140	0	0%
Life Sciences, Society and Policy	1,180	1,180	0	0%
Inflammation and Regeneration	1,230	1,230	0	0%
Canine Genetics and Epidemiology	1,180	1,180	0	0%
Health & Justice	1,290	1,290	0	0%
BMC Mechanical Engineering	1,475	1,475	0	0%
Philosophy, Ethics, and Humanities in Medicine	1,290	1,290	0	0%
Carbon Balance and Management	1,390	1,390	0	0%
Energy, Sustainability and Society	1,390	1,390	0	0%
Journal of Applied Volcanology	1,390	1,390	0	0%
Evolution: Education and Outreach	1,750	1,750	0	0%
Genetics Selection Evolution	1,835	1,835	0	0%
Veterinary Research	1,840	1,840	0	0%
Journal of Congenital Cardiology	1,690	1,690	0	0%
Revista Chilena de Historia Natural	1,940	1,940	0	0%
Journal of Physiological Anthropology	1,990	1,990	0	0%
Agriculture & Food Security	1,870	1,870	0	0%
Big Data Analytics	1,870	1,870	0	0%
International Journal of Food Contamination	1,870	1,870	0	0%
Biology Direct	2,145	2,145	0	0%
Biomaterials Research	2,145	2,145	0	0%
Borderline Personality Disorder and Emotion Dysregulation	2,145	2,145	0	0%
Cancer Imaging	2,145	2,145	0	0%
Cell & Bioscience	2,145	2,145	0	0%
European Review of Aging and Physical Activity	2,145	2,145	0	0%
Fisheries and Aquatic Sciences	2,145	2,145	0	0%
Journal of Ecology and Environment	2,145	2,145	0	0%
Italian Journal of Pediatrics	2,145	2,145	0	0%
Hereditas	1,870	1,870	0	0%
BioData Mining	2,170	2,170	0	0%
Journal of Clinical Movement Disorders	2,170	2,170	0	0%
Trials	2,190	2,190	0	0%
Advances in Simulation	2,440	2,440	0	0%
BMC Biochemistry	2,170	2,170	0	0%
BMC Bioinformatics	2,170	2,170	0	0%
BMC Nursing	2,170	2,170	0	0%
BMC Ophthalmology	2,170	2,170	0	0%

Table 8: 2019 -2020 price changes (amount and percentage) by journal title

Journal title	2019 APC (USD)	2020 APC (USD)	change in price (USD)	change in percentage
BMC Urology	2,170	2,170	0	0%
Diagnostic and Prognostic Research	2,170	2,170	0	0%
Maternal Health, Neonatology and Perinatology	2,170	2,170	0	0%
Research Involvement and Engagement	2,170	2,170	0	0%
Archives of Public Health	2,290	2,290	0	0%
BMC Evolutionary Biology	2,290	2,290	0	0%
BMC Gastroenterology	2,290	2,290	0	0%
BMC Microbiology	2,290	2,290	0	0%
Clinical Proteomics	2,290	2,290	0	0%
Cost Effectiveness and Resource Allocation	2,380	2,380	0	0%
Genes and Environment	2,290	2,290	0	0%
Tropical Medicine and Health	2,290	2,290	0	0%
BMC Cancer	2,390	2,390	0	0%
Molecular Neurodegeneration	2,580	2,580	0	0%
BMC Cardiovascular Disorders	2,380	2,380	0	0%
Cardio-Oncology	2,380	2,380	0	0%
Translational Neurodegeneration	2,400	2,400	0	0%
Annals of General Psychiatry	2,490	2,490	0	0%
Conflict and Health	2,490	2,490	0	0%
Globalization and Health	2,490	2,490	0	0%
Hereditary Cancer in Clinical Practice	2,490	2,490	0	0%
Journal of Neurodevelopmental Disorders	2,490	2,490	0	0%
Neural Development	2,490	2,490	0	0%
Virology Journal	2,490	2,490	0	0%
Retrovirology	2,790	2,790	0	0%
BioMedical Engineering OnLine	2,095	2,040	-55	-3%
Theoretical Biology and Medical Modelling	2,570	2,490	-80	-3%
BMC International Health and Human Rights	2,290	2,170	-120	-5%
Cerebellum & Ataxias	1,990	1,870	-120	-6%
Fungal Biology and Biotechnology	1,990	1,870	-120	-6%
Clinical Sarcoma Research	2,490	2,290	-200	-8%
EvoDevo	2,490	2,290	-200	-8%
Head & Face Medicine	2,490	2,290	-200	-8%
Journal of Biological Research-Thessaloniki	1,990	1,790	-200	-10%
BMC Sports Science, Medicine and Rehabilitation	2,290	2,040	-250	-11%
Cancer Convergence	1,475	1,290	-185	-13%
Environmental Health and Preventive Medicine	2,455	2,145	-310	-13%
Contraception and Reproductive Medicine	2,170	1,870	-300	-14%
Thyroid Research	2,680	2,290	-390	-15%

Table 8: 2019 -2020 price changes (amount and percentage) by journal title				
Journal title	2019 APC (USD)	2020 APC (USD)	change in price (USD)	change in percentage
BMC Dermatology	1,690	1,390	-300	-18%
Injury Epidemiology	1,800	1,390	-410	-23%
Measurement Instruments for the Social Sciences	1,180	860	-320	-27%
BMC Molecular and Cell Biology	2,170	1,570	-600	-28%
Journal of Biomedical Semantics	1,870	1,290	-580	-31%
International Journal for Educational Integrity	1,030	690	-340	-33%
Autoimmunity Highlights	1,990	1,290	-700	-35%
NeuroCommons	1,703	1,090	-613	-36%
Signals	2,145	1,370	-775	-36%
Animal Microbiome	1,825	1,165	-660	-36%
Environmental Microbiome	1,825	1,165	-660	-36%
Urban Transformations	980	625	-355	-36%
BMC Biomedical Engineering	1,475	940	-535	-36%
BMC Chemical Engineering	1,475	940	-535	-36%
BMC Materials	1,475	940	-535	-36%
One Health Outlook	2,145	1,060	-1,085	-51%
BMC Energy	2,145	940	-1,205	-56%

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