Chinese institutional payments for publishing dermatology journal articles

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Abstract
Cash prizes for academic publication were introduced by the Department of Physics at Nanjing University in the 1990s. Most Chinese universities and research institutions have established cash rewards for first authors of publications. Potential payments ranged from $14,000 for an original research article in JAAD to $2000 for a case report in JAMA Dermatology. We examined rewards for publication in the top three highest impact dermatological journals were recorded and compared between two dermatological hospitals, four general hospitals, and Chinese national core journals. Rewards were based upon the Science Citation Index (SCI), impact factor (IF) and publication type. Payment policies were compared between dermatological hospital and general hospitals using the t-test. There was no statistically significant difference between the cash reward payments allotted by general versus dermatological hospitals in China (P=0.32). Chinese authors may receive monetary rewards for a publication in a top dermatology journal based upon journal impact factor and publication type. These policies motivate academic publications and provide an alternative means to reward researchers for their scientific achievements than currently practiced in the West.

Keywords: payments, dermatology, academia, China, publications

Introduction
In 2009, China became the largest contributor of international scientific publications second only to the USA [1]. A growing cash reward system for first authors of academic publications supports Chinese scientific productivity. Cash prizes were first introduced by the Department of Physics at Nanjing University in the early 1990s. Nanjing University subsequently had the most international scientific publications among all Chinese Universities for seven consecutive years [1]. Subsequently, almost all Chinese universities and research institutions have established cash rewards for first authors of publications [1]. Award amounts at forty Chinese universities in 2016 reached more than $40,000 for one published in Nature or Science [1]. The average annual salary of a Chinese scholar is less than $9000 USD [2]. Publications in prestigious journals may lead to authors receiving monetary compensation greater than their annual salaries. Thus, the cash-per-publication award acts as a significant incentive for Chinese scientific scholars and provides a reliable avenue for future funding necessary to sustain valuable research projects. The present study examines the current reward system in China for published articles in dermatological journals.
Methods and Results

We searched for the cash reward policy at general and dermatology Chinese hospitals (Figure 1) via Google or Baidu (a Chinese search engine) using the terms “医院科研奖励” (loosely translated as “hospital research awards”). The amount of cash for different types of publications and different impact factors were recorded. This information was saved in the supplement with its corresponding Google English translation version and the English version was checked by the 2nd author independently. Cash reward policies for both international journals and national journals were studied. The cash reward amount for each hospital was calculated with the specific formula specified by that hospital cash reward policy. The cash reward amount of publication in three top international dermatology journals for the dermatological hospitals and general hospitals were compared using the t-test. The cash reward amount of publication in three top international dermatology journals for dermatological/general Hospitals in Shanghai and its nearby regions and dermatological/general Hospitals in Zhaoqin and its nearby regions were also compared via t-test. Similarly, the cash reward amount of publication in Chinese national core journals were also compared as stated above.

Cash reward policy for two dermatological hospitals and four general hospitals were found (Table 1). The total monetary reward was dependent on the Science Citation Index (SCI), impact factor (IF) and publication type. At the Shanghai dermatological

<table>
<thead>
<tr>
<th>Shanghai Dermatological Hospital</th>
<th>Zhaqin Dermatological Hospital</th>
<th>Shanghai Huashang Hospital</th>
<th>Wenzhou Medical University Hospital</th>
<th>Hainan Medical School Hospital</th>
<th>Guangdong Pharmaceutical Hospital</th>
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<tbody>
<tr>
<td></td>
<td><strong>Letter $5183 (IF X $740)</strong></td>
<td><strong>Letter or Review article $5183</strong></td>
<td><strong>Letter or Review article $1783</strong></td>
<td><strong>Research paper $7402 (IF X $1486)</strong></td>
<td><strong>Research paper $10366 (IF X $1486)</strong></td>
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<td></td>
<td><strong>Case report $3110 (IF X $444)</strong></td>
<td><strong>Case report $2073</strong></td>
<td><strong>Case report $2229 for IF $10)</strong></td>
<td><strong>($446 for IF &lt;1, IF X $743 for 1≤IF &lt;2, IF X $$1189 for IF ≥2 with the upper limit of $7431)</strong></td>
<td><strong>($446 for IF &lt;1, IF X $743 for 1≤IF &lt;2, IF X $$1189 for IF ≥2 with the upper limit of $7431)</strong></td>
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<td><strong>JID</strong></td>
<td><strong>Research paper $9303</strong></td>
<td><strong>Research paper $7442</strong></td>
<td><strong>Research paper $12094</strong></td>
<td><strong>Research paper $7402</strong></td>
<td><strong>Research paper $9303</strong></td>
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<td></td>
<td><strong>Letter $4652</strong></td>
<td><strong>Letter or Review article $4652</strong></td>
<td><strong>Case report $1861</strong></td>
<td><strong>Case report $1861</strong></td>
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<td><strong>Case report $2791</strong></td>
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<td><strong>JAMA Dermatology</strong></td>
<td><strong>Research paper $8612</strong></td>
<td><strong>Research paper $6889</strong></td>
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<td><strong>Research paper $6889</strong></td>
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<td><strong>Letter $4306</strong></td>
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<td><strong>Case report $2584</strong></td>
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</table>

Table 1. Cash reward policies for dermatological and general hospitals in China.
hospital, the cash rewarded for a case report is equivalent to the IF multiplied by $444 dollars. To calculate the sum paid for a research letter, the IF is multiplied by $740, and for an original research paper the IF is multiplied by $1479 [3].

Another dermatological hospital located in Zhaoqing, a Southern Chinese city, also provides cash rewards for publications. A research paper is awarded $297 if published in an international SCI journal with IF<0.5, $892 for 0.5≤IF<1, and IF multiplied by $1189 for any journal with IF≥1. The cash reward information for international SCI publications outside of research papers was not found [4].

At Shanghai Huashang Hospital, a general hospital in Shanghai, research papers published in international SCI journals are awarded the IF multiplied by $1486. This policy in the general hospital applies to every clinical specialty, including dermatology [5]. At the affiliated hospital of Wenzhou Medical University, a province immediately adjacent to Shanghai, the reward policy for research article is as follows: $743 for IF<1, IF $1486 for 1≤IF<3, IF $1783 for 3≤IF<5, IF $1932 for 5≤IF<10, and IF $2229 for IF≥10 [6].
Table 2. Comparison of cash rewards for publication in a US top 3 dermatological journal between general and dermatological hospitals in China

<table>
<thead>
<tr>
<th></th>
<th>Dermatological Hospitals</th>
<th>General Hospitals</th>
<th>P Value</th>
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<tr>
<td>JAAD+JID+JAMA Dermatology</td>
<td>$8484</td>
<td>$9585</td>
<td>0.32</td>
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</table>

At the affiliated general Hospital of Hainan medical school $446 is awarded for international SCI journals with IF<1, IF X $743 for 1≤IF<2, IF X $1189 for IF≥2 with the caveat that the upper limit of a reward for one paper is $7431. The cash reward data for publications other than research papers was not found [7].

At the affiliated hospital of Guangdong Pharmaceutical Hospital, the reward policy for research articles is $1486 for IF<1, and IF X $1486 for IF≥1.5 [8]. Table 1 describes the Chinese cash rewards for articles in three U.S. dermatological journals: JAAD, JID, and JAMA Dermatology. A paired t-test was used to compare the cash reward average for articles published in JAAD, JID and JAMA Dermatology from both general and dermatological hospitals in the two different locations in China (Table 2). Cash reward average of dermatological/general Hospitals in Shanghai and its nearby regions and cash rewards of dermatological/general Hospitals in Zhaqin and its nearby regions were also compared (Table 3). Publications in Chinese national core journals are also listed in Table 4. In Chinese national journal publications, the prize is directly awarded by a stipulated amount of cash instead of a formula. There was no statistically significant difference between the cash awarded for publications in Chinese national core journals by dermatological versus general hospitals (Table 5). Neither is there any significant difference between the two geographic regions as stated above (Table 6).

Table 3. Cash reward policies for publications in Chinese national core journals.

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<th>Shanghai Dermatological Hospital</th>
<th>Zhaqin Dermatological Hospital</th>
<th>Shanghai Huashang Hospital</th>
<th>The 1st affiliated hospital of Wenzhou Medical University</th>
<th>The 1st affiliated Hospital of Hainan Medical School</th>
<th>The 1st affiliated Hospital of Guangdong Pharmaceutical Hospital</th>
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<tr>
<td></td>
<td>Letter $74</td>
<td>Research article $30</td>
<td>Review article $30</td>
<td>Review article or case report $148</td>
<td></td>
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<tr>
<td></td>
<td>Case report $30</td>
<td>Review article $74</td>
<td>Case report $7</td>
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</table>

Table 4. Comparison of reward money allotted to researchers for publications in national core journals between dermatological and general hospitals in China.

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<th>Dermatological Hospitals</th>
<th>General Hospitals</th>
<th>P Value</th>
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<tbody>
<tr>
<td>Chinese National Core Journal Publication</td>
<td>$148</td>
<td>$361</td>
<td>0.39</td>
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</table>

Discussion

In the West, scientists publish scientific findings and primarily receive recognition and job promotions as major rewards for their contributions. However, in China, a direct first author pay for publication reward policy has emerged at some research institutions since the early 1990s.

Our study assessed potential payments to Chinese dermatologists and cutaneous scientists for publications in top international dermatology journals. We found that cash rewards for dermatological journals are mainly based on the impact factors of the journal and the publication type. In some hospitals, this cash is only rewarded to
Table 5. Comparison of the cash awarded for publications in Chinese national core journals by dermatological versus general hospitals.

<table>
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<th>Dermatological Hospitals</th>
<th>General Hospitals</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research paper prize in national journals</td>
<td>$148</td>
<td>$361</td>
<td>0.39</td>
</tr>
</tbody>
</table>

the first and corresponding author, both of whom must be hospital employees to qualify for the prize [3, 5, 7]. The first author and corresponding authors may decide amongst themselves how to divide the prize per each individual’s contribution. Multiple first authors on a manuscript may further complicate payments. At the Shanghai dermatological hospital, the policy states that the second co-first authors are not rewarded prize money [3]. But such information on how to divide the prize among several first authors was not stated in other payment policies.

In China, resources for funding research are unequal. Tier 1 and Tier 2 universities (n=112) receive 70% of national funding for research, while 1124 Tier 3 universities receive the remaining 30%. Geographic differences in the national funding for researchers also exist, with universities located in the eastern part of China receiving more funding than those in western China [9]. In our study, cash reward average for a publication in the top three international dermatology journals in dermatological/general hospitals in Shanghai and its nearby regions (Eastern region) is significantly greater than cash reward average in dermatological/general hospitals in Zhaoqin and nearby regions (P<0.05).

There was no significant statistical difference between rewards at general versus specialty dermatological hospitals (P=0.32).

Our research was limited by the scarcity of cash reward policy data available on the Internet [1].

**Conclusion**

Is the cash reward policy for research publication desirable or not? Some argue the incentives can promote research productivity [10]. There was a significant increase in scientific publications from 1995 to 2013 in China, correlating with the timeline of cash reward policy establishment and expansion [11]. Cash rewards provide an important incentive for research publication. However, others argue against direct author payments due to the potential for negative impact scientific research [12]. For example, researchers who are rewarded cash incentives may prefer quick, short-term publications rather than embarking on a long-term research commitment, the latter of which may lead to greater original scientific breakthroughs. Interestingly between 2003 and 2012, Chinese author publications in dermatology journals consisted primarily of original research articles (67%), followed by case reports (19%), [13]. Compared to dermatology journal publications in Japan and South Korea, Chinese dermatology publications had the highest percentage of original research articles published [13]. Journal impact factors, although controversial, are often used to measure published research quality [14]. Average impact factors per dermatology publication have risen steadily in mainland China between 2002 and 2011 [13]. Although the cash reward system is controversial owing to the potential

Table 6. Cash average among the top 3 dermatologic journals in the United States.

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<th>Cash Reward Average of Dermatological/General Hospitals in Shanghai and its nearby regions¹</th>
<th>Cash Reward Average of Dermatological/General Hospitals in Zhaoqin and its nearby regions²</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research paper prize in national journals</td>
<td>2167 Yuan</td>
<td>1748 Yuan</td>
<td>0.66</td>
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</table>

¹Dermatological/general hospitals included for Shanghai and its nearby regions are Shanghai Dermatological Hospital, Shanghai Huashang Hospital and Wenzhou Medical University Hospital. ²The dermatological/general hospitals in Zhaoqin included are Zhaoxin Dermatological Hospital, Hainan Medical School Affiliated Hospital, and Guangdong Pharmaceutical Hospital. All amounts listed are in U.S. dollars (Dollars to Yuan conversion rate = 6.75, source: http://www.xe.com/currencyconverter/convert/?Amount=1&From=USD&To=CNY and 07/26/2017).
for scientific bias [15, 16], recent trends in dermatology publications in China show not only an increase in research quantity [1], but also an increase in per paper impact factor. Whereas there are ethical and conflict of interest issues to consider with cash payments for publication, it is an alternative system that has increased productivity in dermatology research. Although it is possible a significant fraction of the cash per publication is used to fund future research in China, there have been no studies to date investigating this possibility. Thus, future research is needed to study how the cash rewarded to Chinese researchers is used. There are alternative methods to gain funding in the United States through private interests often in the form of pharmaceutical companies. Additionally, pilot programs to incentivize research in the United States through grants and monetary incentives have shown promising results [17]. However, whether the benefits of the cash-per-publication system outweigh the risks, remain to be determined.

References

### Supplemental Information

#### Shanghai Dermatological Hospital

SCI：按影响因子值和文章类型奖励，每分奖励额度：3000 元（病例报道类）、5000 元（信件、其他类篇幅超过 2 个版面文章等）、10000 元（综述类、论著类等）；奖励金额为 IF×奖励额度；2. 中华医学会主办的中华系列核心期刊，论著、述评类每篇奖励 1000 元；短篇论著每篇奖励 500 元；综述、报道等每篇奖励 200 元；发表于非 SCI 期刊的外文文献，参照此标准奖励；

English translation: According to the impact factor value and the type of article awards, each reward: 3,000 yuan (case reports), 5,000 yuan (letters, other types of more than two pages of articles, etc.), 10,000 yuan (review category, the class, etc.); The amount of IF × reward amount; 2, the Chinese Medical Association sponsored the core of the Chinese series of journals, critics, each class reward 1000 yuan; short articles on each award 500; review, reports and other awards 200 yuan; SCI journals of foreign literature, with reference to this standard reward;

#### Zhaoqin Dermatological Hospital

在《科学引文索引》（Science Citation Index, SCI）收录期刊发表的论文，版面费给予全额报销，并根据该期刊在论文发表当年的影响因子给予相应的奖励：影响因子<0.5，奖励 2000 元；0.5≤影响因子<1，奖励 6000 元；影响因子≥1，奖励为：影响因子×8000 元。三）在国内医学权威期刊发表的论文，给予全额报销版面费，并根据所发表论文的种类和篇幅给予相应的奖励：论著奖励 1000 元，论著摘要及篇幅在 1 页以上的病例（案）报告奖励 800 元，综述及篇幅在 1 页以内（含 1 页）的病例（案）报告奖励 500 元。

English translation: A) In the "Science Citation Index" (Science Citation Index, SCI) published journals published in the paper, the layout fee to give full reimbursement, and in accordance with the journal published in the paper the impact of the year to give the appropriate incentives: impact factor <0.5, 2000 yuan; 0.5 ≤ influencing factor <1, reward 6,000 yuan; impact factor ≥ 1, the reward is: the impact factor ×8000 yuan. C) in the domestic medical authority published papers, given the full reimbursement of the layout fee, and according to the type of published papers and the length of the corresponding reward: the award of 1,000 yuan, the abstract and the length of more than 1 case (case) Report reward 800 yuan, summary and length of 1 page (including 1 page) case (case) report reward 500 yuan.

#### Shanghai Huashang Hospital

为第一作者单位、第一作者和通信作者，按 IF 值 1 分奖励壹万元为标准，奖励给以通信作者为牵头人的课题组。

English translate: Huashan Hospital for the first author of the unit, the first author and communication author, according to the IF value of 1 points reward million yuan as a standard, to give the author of the communication to the leader of the task group.

#### Wenzhou medical University Hospital

2. 学术论文的奖励标准：国际权威学术期刊发表学术论文并被 SCI（科学引文索引）核心数据库收录，根据论文发表的学术期刊前一年的影响因子（impact factor，IF）给予以下奖励，但最高奖励不超过“Nature”。

IF < 1.0，奖励金额= 5000 元/篇
1.0 ≤ IF < 3.0 奖励金额= [杂志影响因子] × 1.0 万元
3.0 ≤ IF < 5.0 奖励金额= [杂志影响因子] × 1.2 万元
5.0≤ IF < 10.0 奖励金额 = [杂志影响因子] * 1.3 万元
IF≥10.0，奖励金额 = [杂志影响因子] * 1.0 万元

（2）在国内一级期刊发表的论文：① 有中英文摘要，篇幅≥2 页的中华医学会系列的论著金额述评，每篇奖励 0.5 万元；② 篇幅≥2 页的论著和述评，每篇奖励 0.2 万元；③ 其余论著和临床经验、专家讲座及综述等，每篇奖励 0.1 万元。

English translation: (2) the international four major index SCI, EI, ISTP, SSCI one of the academic papers included, with valid certificate full reward site fee, while the impact factor <1.5 journals, and then
reward 10,000 yuan / article; for the impact factor ≥1.5 periodicals, and then reward the amount of the impact factor × 1 million / article.

(3) the domestic Chinese core journals (to the latest edition of the Beijing University Library core journals directory as a standard), foreign official journals published in foreign papers (with valid certificate), the hospital to reimburse the layout fee, the maximum amount of 3,000 yuan / article. Domestic other regular publications published papers reimbursement 300 yuan / article. Supplement, review the layout fee is not reimbursed. Such journals are not rewarded.