



# CWTS BIBLIOMETRIC REPORT

Meaningful metrics

## Amended Research Performance Analysis of Biomedical & Health Research in England (2011- 2018/2019)

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Universiteit  
Leiden

# Amended Research Performance Analysis of Biomedical & Health Research in England (2011–2018/2019)

This is an amended version of the report *Research Performance Analysis of Biomedical & Health Research in England (2011–2018/2019)*, dated April 13, 2021. This version corrects an error that arose in Section 3 of the original report which resulted in the 68 research profiles being incorrectly compiled. Instead of listing the 25 most prominent categories for an organisation (in terms of output), the report listed the 25 most prominent categories in Biomedical and Health Research. The performance statistics were correct, but the categories included did not properly reflect the organisational profile as stated in the method section. We apologise for this error.

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## General parameters of the bibliometric report

### Parameters

Database	:	Web of Science (All publications in the SCIE, SSCI, AHCI, and CPCI)
Classification system	:	Publication-level classification system (about 4000 fields)
Publication window	:	2011–2018
Citation window	:	Variable length up to 2019
Counting Method	:	Fractional counting at the level of organisations for citation impact measurement
Self-citations	:	Excluded
Top indicators	:	Top 20 %

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## How to read the report and statistics.

In this report we assess the performance of 68 biomedical and health organisations in England. This assessment is based on bibliometric data and focuses only on research output in international peer-reviewed journals (covered by web of Science). The results should therefore be read and interpreted in that context.

We discuss the performance using indicators primarily looking at output and impact. The output relates to the number and types of publications in which an organisation was involved, while the impact relates to the number citations these publications have received over the years.

### Indicators

An indicator may be size-dependent or size-independent. If an organisation has many research FTEs available, the absolute number of publications in which they are involved is usually higher than the number for an organisation with a few FTEs. Because there is no information available on the input (say, FTEs), we cannot use such indicators to compare organisations.

Therefore, to assess and compare the scientific impact of organisations, we provide the size-independent indicators (particularly, MNCS and PP[top20%]). These two indicators strongly correlate (c.f. Figure 1) and both measure impact, so in principle they can both be used to compare units.

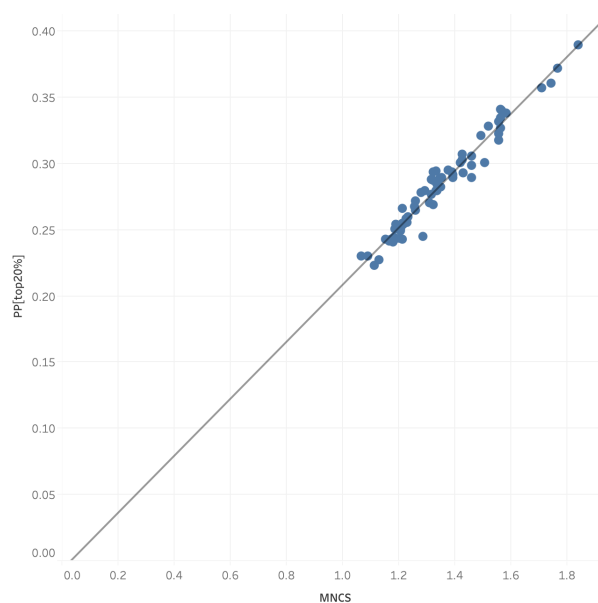


Figure 1: MNCS vs PP[top20%] for 68 BMH organisations in England 2011–2018

The MNCS, however, is an average, including the impact of all publications, and therefore sensitive to outliers. One paper with a huge number of citations will affect that average. This should not be disregarded, of course, but will affect the stability of the measurement. For that reason the PP[top20%] can function as an alternative or supportive measure to assure or check robustness.

Another feature of these size-independent measures is the fact that they can be related to the world average. An MNCS of 1.5 means an impact at 50% above world average of 1. A PP[top20%] of 0.3 means an impact at 50% above world average of 0.2.

## Profiles

The collaboration and research profiles provide more detail to the main output and impact statistics. The collaboration profiles show the types of co-authorship an organisation had and the impact of the different types (single institute, national or international). In such a profile the size-dependent indicator  $P$  can be used because the distribution across types remains within the same organisation.

The same applies to the research profile, where the output and impact are distributed across subject categories (fields). In this profile, the focus on specific fields is revealed as well as the impact.



## List of indicators

- P (full)** The number of publications, full counting.
- P (fract)** The number of publications, fractionally counted. The fraction is determined based on the number of co-authoring organisations.
- PP (collab)** Proportion of publication output, full counting, involving collaboration (organisation co-authorship)
- PP (int collab)** Proportion of publication output, full counting, involving international collaboration (co-authorship of organisations from more than one country)
- TCS** The total citation score. This represents the total number of citations accumulated within the citation window, excluding author self-citations.
- P(top20%)** The number of publications, fractionally counted, that belong to the top 20% of their field. The field is determined on the basis of a detailed publication classification system of CWTS, consisting of about 4000 fields.
- PP(top20%)** The proportion of publications (P) belonging to the top 20% most cited of their field and in the same year. The field is determined on the basis of a detailed publication classification system of CWTS, consisting of about 4000 fields. The PP[top20%] in the entire database is 0.20. A score above 0.20 represents impact that is higher than the world average.
- MNCS** The mean normalised citation score. This represents the normalised average citation score per publication. Normalisation is based on a detailed publication classification system of CWTS, consisting of about 4000 fields. The average MNCS in the entire database is 1. Scores higher than 1 reflect a citation-based impact that is higher than the world average.
- MNJS** The mean normalised journal score. This represents a normalised citation-based journal impact score. The MNJS is an average score for all publications in the same journals in which a unit published. The normalisation is based on a detailed publication classification system of CWTS, consisting of about 4000 fields. The average MNJS in the entire database is 1. Scores higher than 1 reflect a journal citation impact that is higher than the world average.

For more details about the normalised citation indicators, please refer to [Waltman et al. \(2011a,b\)](#). More information about the mentioned publication-level classification is in Annex D.

# 1 Introduction

CWTS has supported the application process for the National Institute for Health Research (NIHR) Biomedical Research Centres (BRC) in the last decade by providing dedicated bibliometric performance reports. These reports served the purpose of assisting potential applicants, providing evidence of their competences. This evidence can be used in the decision-making process and informing the International Selection Panel. The data collection process was always pivotal in the project. Particularly, working with the address affiliations of NHS Trusts and NHS Foundation Trusts in a proper and systematic way, is a challenge. CWTS has ample experience with this and has identified many Trusts already in its database, i.e. systematically allocated publications to the right entity.

The previous bibliometric reports focused on the number of Highly Cited Publications (HCPs). In the current report CWTS uses a broader range of indicators working with both size-dependent as well as size-independent indicators (see also Section 2.2). For the latter we work with the Mean Normalised Citation Score (MNCS) and the **proportion** of highly cited Publications (PP[top20%]). The P[top20%] reflects the absolute number of top 20% publications and is therefore a size-dependent indicator.

In general, we use the size-independent indicators (MNCS, PP[top20%], MNJS) to describe the performance of units. Obviously, the organisations selected for this study vary significantly in terms of size (e.g. number of research FTEs available). Looking at the number of (top 20%) publications produced will show differences that do not relate to performance but to size. Moreover, by using size-independent indicators we can relate scores to the world averages.

In Section 2 we describe in brief the applied approach to provide the bibliometric research performance analysis and methods used in this study. In Section 2.1, we specifically describe in detail the process of selecting the 68 organisations for this study.

In Section 3, we present an overview of the performance of the selected organisations for this report followed by 2-page reports on the performance of the biomedical health research for each of the 68 selected organisations.

## 2 Summary data and method

In this section, we discuss the methods underlying the bibliometric analysis developed for the relevant *units of analysis* (NHS organisations and universities). Additional information about methods and data can be found in the Annexes.

### 2.1 Data collection

For this study we selected the key organisations in biomedical and health research in the UK. We confined the selection to UK Higher Education organisations (universities) and NHS organisations only. For all organisations of these types, we collected publications (articles and reviews) in Web of Science (WoS) in the period 2011–2018 within the perimeter of biomedical and health research. The sub-selection of biomedical and health (BMH) research was established by using the WoS subject categories. A selection of 80 categories was created to define BMH. These 80 categories are listed in Annex A. To avoid exclusion of relevant publications in multi-disciplinary journals (e.g. *Nature*, *Science*, *Plos ONE*, *Scientific Reports*), we applied an advanced technique to include them. All publications in multidisciplinary journals by any of the UK organisations were assigned proportionally to BMH on the basis of their references. For instance, if a publication in *Nature* with 10 references has 4 references to *Oncology* journal papers and the other 6 to non-BHR articles, this publication will be considered 0.4 a BMH publication. Furthermore, if journals belong more than one category, while one of these category does not belong to the BMH selection of categories, publications in that journal will be counted only for the BMH part.

Subsequently, we counted the total number for all UK organisations in BMH in the period from 2011 to 2018 as well as the number of publications belonging to the top 20% in their field (P[top20%]). A list with all UK organisations (101 universities or NHS organisations) involved in at least one top 20% publication is provided in Annex B.

The P[top20%] was used to make a selection of top BMH organisations from the 101 candidates to be assessed in this report. We selected only those organisations with at least 200 top 20% publications in this period. Thus, we identified a group of 68 universities or NHS organisations to include in this study. For these organisations we collected and used all BMH articles and reviews in WoS journals in the period from 2011 to 2018.

Publications are assigned to NHS organisations and higher education institutions based on their configuration up to 2018. Changes in the organisational structures of NHS organisations and higher education institutions up to 2018 have been taken into account.

## 2.2 Indicators

In bibliometric analyses regarding research performance we usually discern two types of indicators: size-dependent and size-independent. This is done to cover the fact that the objects of investigations (organisations, countries etc.) differ in size. In this study we need to respect that the organisations we selected, do not have the same amount of research FTE capacity available. Therefore, larger organisations will be involved in more publications than smaller ones. And subsequently this will affect the absolute number of top 20% publications (Figure 2).

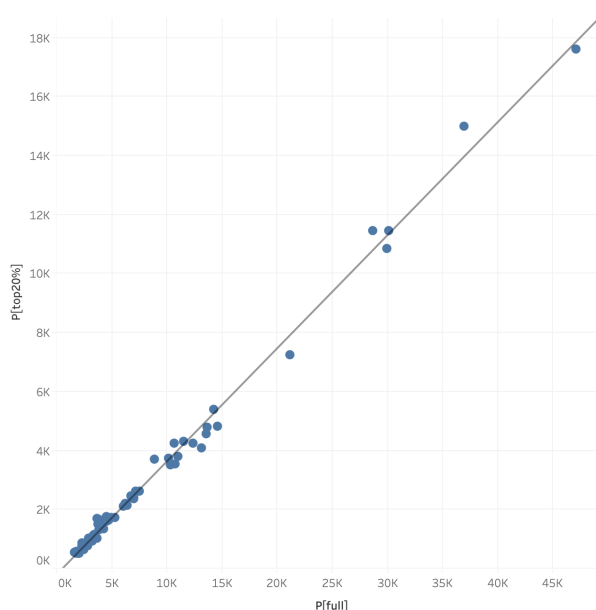


Figure 2: P vs P[top20%] for 68 BMH organisations in England 2011–2018

Proportion indicators (PP[collab], PP[int collab], PP[top20%]) and average indicators (MNCS, MNJS) are size-independent, the others used in this study (P[full], P[fract], TCS) are size-dependent. In the reports we will primarily discuss the results using the size-independent indicators to account from size differences of the organisations. Moreover, the results for size-independent indicators can, in most cases, be related to the world average.

### Output indicators

#### *Size-dependent*

The basic output measure regards the number of publications (**P[full]**, i.e. full counting). This indicator reflects the number of publications in which a unit was involved as co-author. In addition, we provide the indicator **P[fract]** which assesses a unit's contribution to the output P[full]. Each individual publication is divided by

the number of organisations co-authoring.  $P[\text{fract}]$  is the sum of these fractions of publications in which a unit was involved.

#### *Size-independent*

Other indicators that characterise the output are the proportion of the output involving collaboration (**PP[collab]**, where authors from more than one organisation were involved) and international collaboration (**PP[Int collab]**, where authors from more than one country were involved). In this report, a publication is tagged as international collaboration if one of the co-authoring organisations is based outside the UK.

### **Impact indicators**

#### *Size-dependent*

The scientific impact of a unit's output is measured by citations. We provide the total number of citations received (**TCS**) up to 2019, for papers published from 2011 to 2018, excluding author self-citations and independent from the field. Another size-dependent indicator of impact is  $P[\text{top20\%}]$ , i.e. the absolute number of publications belonging to the top 20% most cited publications (in their field and from the same year).

*Size-independent* Furthermore, we provide the normalised average (Mean Normalised Citation Score, **MNCS**). The citation impact as measured by MNCS is normalised by research area and year. The research area to which a publication belongs is defined by a publication-level classification (for details, see [D](#)). In this classification each publication is in a cluster (class) of similar publications. The similarity is defined by their citation environment (cited and citing publications). This classification is more fine-grained and is considered more accurate than a journal classification (c.f. [Ruiz-Castillo and Waltman \(2015\)](#)). In a journal classification all publications from one journal are in the same class. Similar journals are in the same class and journals may belong to more than one class. We use this journal classification to characterise a unit's output in research profiles but not to normalise impact.

In addition, we provide the proportion of publications in the top 20% most cited publications (within their research area, i.e. class, and in the same year, **PP[top20%]**).

This indicator correlates strongly with the MNCS but is not sensitive to outliers. The MNCS can sometimes be biased by one paper being cited many times. This may particularly occur in cases where there are smaller numbers of papers. It cannot be ignored, of course, but readers should be made aware of this. The  $PP(\text{top20\%})$  is not influenced by this one paper, as it is 'just' one of the top 20% or not. If the MNCS is much higher than the 'matching'  $PP(\text{top20\%})$ , this is due to such a skewed distribution and can thus be identified.

Finally, we also use an indicator measuring the impact of journals, the Mean Normalised Journal Score (**MNJS**). This indicator assesses the journals (aggregated) used by the unit in terms of citation-based impact, using the same normalisation as we use for measuring the unit's impact (MNCS). As such, the MNJS does not measure the (average) impact of a unit's publications, but rather the impact of the journals in which a unit publishes.

## 2.3 Counting method

As most publications are produced in collaboration with other organisations, we should take this aspect into account when measuring impact. In 2015, [Waltman and van Eck \(2015\)](#), showed that on average the more co-authoring organisations are involved, the higher the impact. Co-authored papers benefit more from full counting than other papers. To correct for this effect, a method of fractional counting of publications to measure impact was developed. We use this method for impact scores but use full counting of publications for output scores ( $P[\text{full}]$ ). In the research profiles and detailed statistics, we also provide  $P[\text{fract}]$ , reflecting the quantity as measured by fractional counting.  $P[\text{fract}]$  for a publication is a fraction of 1 that depends on the number of organisations involved in the publication. If four different organisations are involved, this publication is counted as 0.25. For impact measurement, we calculate all citations according to the set criteria, but the contribution of this publication's impact is divided by four (i.e. multiplied by 0.25).

## 2.4 Organisation profiles

### Output

For each unit, we provide a research profile and a collaboration profile, which characterise a unit's output and impact in more detail. These profiles contain a distribution (both output and impact) across output types.

In the case of a research profile, we distribute the output across WoS subject categories (a.k.a. the WoS journal classification). In Annex E, we provide a list of all WoS categories. For this project, only the BMH categories (c.f., Annex A) and the multidisciplinary sciences were used. For each organisation we provide a profile based on the top 25 subject categories (in terms of output) and if the number of publications is 3 or more.

Subject categories provide a coarse structure of all sciences. By distributing a unit's output across these categories, we provide a broad overview of their activities and focus. In each profile we include both  $P[\text{full}]$  and  $P[\text{fract}]$ , i.e. the number of publications in which a unit was involved ( $P[\text{full}]$ ) and the number of publications normalised by the number of organisations involved. Moreover, if a publication is in a journal that belongs to two categories, it is assigned 0.5 to each category.

For collaboration profiles, we classify publications by the (co-)authoring organisa-

tions. The different types of collaboration are: (1) single institute, in which only the organisation under study is involved, (2) national collaboration for publications with at least two different organisation co-author from the UK, and (3) international collaboration for publications co-authored by organisations from the UK and at least one outside the UK.

### **Impact**

In the profiles, the impact of individual publications is measured in the same way as for the entire unit (PP[top20%], MNCS and MNJS normalised by research area and year). This means that the impact is measured fractionally and aggregated by category. In the research profile, we rank categories on the basis of P[full] (using full counting). In this way we depict a unit's focus by the number of publications in which it is involved, while the impact is measured by the proportion to which it contributes, hence consistent with the overall impact measurement.





## 3 Results

### 3.1 Overview

In this section we report the overall results of this study. In Tables 1 and 2 the key performance indicators are included for universities and NHS organisations, which are the size-dependent total number of publications ( $P[\text{full}]$ ) in which a unit was involved and the number of publications belonging to the top 20% most cited in their field and year, as well as the size-independent impact indicators MNCS and  $PP[\text{top20\%}]$ . The organisations are listed in alphabetical order. In Section 3.2, more detail is provided per organisation.

Subsequently in Figure 3, we visualise the co-publication network of the 68 organisations, in which the two types of organisations are colour-coded (universities: Red and NHS organisations: Green). The 200 most prominent connections in terms of number of co-authored publications are visualised. This network clearly shows a clustering by type of organisation, which highlights primarily the bias of universities to co-author with each other, and the dominance of the large universities at the centre of this network.

In a more detailed study, we report on the key partnerships in UK BMH research in terms of the top 20% publications ( $P[\text{top20\%}]$ ). Table 3 presents the most prominent pairs of universities and NHS organisations in terms of co-authored top 20% publications, with a minimum of 500 co-publications and 50 top 20% publications. Table 4 presents the most prominent pairs of universities in terms of co-authored top 20% publications, with a minimum of 1000 co-publications and 100 top 20% publications.

## Performance overview

Table 1: Performance for selected universities 2011-2018/19

Organisation	P[full]	P[top20%]	MNCS	PP[top20%]
Aston Univ	1,792	513	1.26	0.26
Birkbeck - Univ London	1,767	567	1.39	0.29
Brunel Univ London	1,997	500	1.09	0.23
City Univ London	2,045	508	1.11	0.22
Durham Univ	2,643	844	1.32	0.29
Imperial Coll London	30,130	11,461	1.57	0.33
Inst Cancer Res	3,698	1,678	1.84	0.39
Keele Univ	2,482	701	1.29	0.24
King's Coll London	29,968	10,841	1.52	0.33
Lancaster Univ	2,643	769	1.18	0.24
Liverpool John Moores Univ	2,452	646	1.18	0.24
London Sch Econ & Polit Sci	1,582	533	1.51	0.30
London Sch Hyg & Trop Med	14,235	5,397	1.71	0.36
Loughborough Univ	3,242	920	1.21	0.27
Newcastle Univ	12,380	4,236	1.43	0.30
Queen Mary Univ London	11,539	4,319	1.49	0.32
Roy Vet Coll - Univ London	2,799	755	1.17	0.24
St George's - Univ London	4,553	1,755	1.56	0.32
Univ Bath	3,370	974	1.22	0.25
Univ Birmingham	14,606	4,820	1.34	0.28
Univ Brighton	2,310	639	1.07	0.23
Univ Bristol	13,613	4,775	1.46	0.31
Univ Cambridge	28,655	11,441	1.74	0.36
Univ Coll London	47,143	17,617	1.59	0.34
Univ E Anglia	4,785	1,652	1.43	0.31
Univ E London	3,644	1,009	1.21	0.25
Univ Exeter	6,711	2,468	1.56	0.33
Univ Greenwich	2,010	561	1.26	0.27
Univ Hull	2,834	804	1.19	0.25
Univ Kent	2,302	632	1.20	0.24
Univ Leeds	10,322	3,495	1.38	0.29
Univ Leicester	6,232	2,193	1.29	0.28
Univ Liverpool	13,587	4,549	1.35	0.29
Univ Manchester	21,207	7,224	1.39	0.29
Univ Nottingham	13,101	4,089	1.32	0.28
Univ Oxford	36,995	15,001	1.77	0.37
Univ Plymouth	3,522	1,072	1.23	0.26
Univ Reading	2,988	929	1.33	0.28
Univ Sheffield	10,741	3,541	1.35	0.28
Univ Southampton	11,021	3,806	1.35	0.29
Univ Surrey	3,458	1,006	1.22	0.25
Univ Sussex	4,228	1,349	1.43	0.29
Univ Warwick	6,978	2,345	1.46	0.30
Univ York	6,427	2,136	1.46	0.29

Table 2: Performance for selected NHS organisations 2011-2018/19

Organisation	P[full]	P[top20%]	MNCS	PP[top20%]
Barts Health NHS Trst	7,524	2,615	1.34	0.28
Cambridge Univ Hosps NHS Trst	8,905	3,692	1.56	0.34
Great Ormond Str Hosp Children NHS FT	4,556	1,581	1.21	0.25
Guys & St Thomas NHS FT	10,164	3,735	1.33	0.29
Imperial Coll Hlthcare NHS Trst	7,038	2,428	1.33	0.29
Kings Coll Hosp NHS FT	4,704	1,618	1.32	0.27
Leeds Teach Hosps NHS Trst	6,055	2,097	1.21	0.24
Manchester Univ NHS FT	6,805	2,408	1.26	0.27
Moorfields Eye Hosp NHS FT	2,315	762	1.28	0.28
N Bristol NHS Trst	2,285	730	1.15	0.24
Newcastle upon Tyne Hosps NHS FT	3,856	1,300	1.21	0.25
Nottingham Univ Hosps NHS Trst	5,315	1,737	1.23	0.26
Oxford Univ Hosps NHS FT	10,680	4,246	1.57	0.34
Roy Brompton & Harefield NHS FT	3,781	1,510	1.32	0.29
Roy Free London NHS FT	4,028	1,424	1.23	0.26
Roy Marsden NHS FT	3,867	1,656	1.56	0.32
S London & Maudsley NHS FT	2,309	855	1.56	0.33
Sheffield Teach Hosps NHS FT	3,316	1,103	1.18	0.24
St Georges Univ Hosps NHS FT	2,890	1,026	1.31	0.27
Univ Coll London Hosps NHS FT	7,188	2,617	1.42	0.30
Univ Hosp Southampton NHS FT	4,647	1,717	1.39	0.29
Univ Hosps Birmingham NHS FT	4,946	1,713	1.19	0.25
Univ Hosps Leicester NHS Trst	3,383	1,161	1.18	0.24
University Hospitals Bristol NHS FT	2,820	899	1.13	0.23

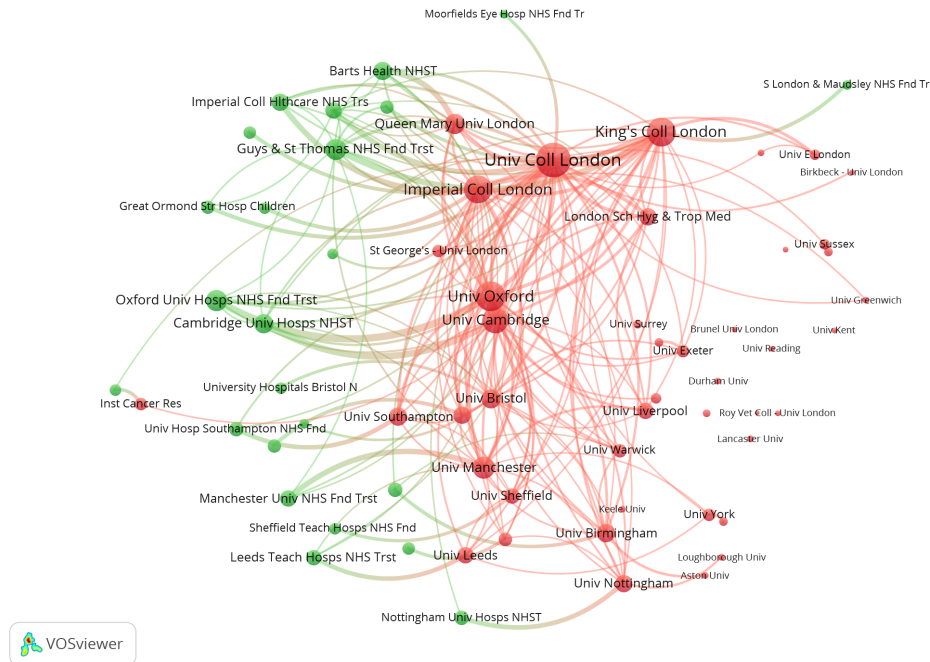


Figure 3: Collaboration network of selected BMH organisations in England 2011–2018 (all BMH fields)

In Figure 3, we visualised the co-authorship network of the 68 selected organisations (units) in this study. Universities are in Red and NHS organisations are in Green. The size of a circle indicates the number of publications a unit was involved in, while the position indicates the relationship in terms of co-authorship. The more two units co-author, the closer they are. The connecting lines between units reflect the 200 most prominent collaborations.

Table 3: High impact collaborations between universities and NHS 2011–2018

Criteria: # Co-pubs &gt;= 500, # Top20% P &gt;= 50

Full Name (Actors.Txt)	Full Name (Actors.Txt2)	P[full]	P[top20%]
Imperial College London	Barts Health NHS Trust	590	285
	Cambridge University Hospitals NHS Foundation Trust	605	352
	Guy's & St. Thomas' NHS Foundation Trust	728	360
	Imperial College Healthcare NHS Trust	4,551	1,613
	Oxford University Hospitals NHS Foundation Trust	635	380
	Royal Brompton & Harefield NHS Foundation Trust	2,322	1,021
King's College London	Barts Health NHS Trust	653	312
	Guy's & St. Thomas' NHS Foundation Trust	5,582	2,137
	Imperial College Healthcare NHS Trust	556	274
	King's College Hospital NHS Foundation Trust	1,842	620
	South London and Maudsley NHS Foundation Trust	2,072	806
Newcastle University	Newcastle upon Tyne Hospitals NHS Foundation Trust	2,052	686
Queen Mary University of London	Barts Health NHS Trust	4,790	1,756
St George's, University of London	St George's University Hospitals NHS Foundation Trust	918	366
The Institute of Cancer Research	The Royal Marsden NHS Foundation Trust	1,808	865
The University of Manchester	Manchester University NHS Foundation Trust	4,493	1,696
The University of Sheffield	Sheffield Teaching Hospitals NHS Foundation Trust	1,614	516
University College London	Barts Health NHS Trust	1,264	558
	Cambridge University Hospitals NHS Foundation Trust	846	494
	Great Ormond Street Hospital for Children NHS Foundation Trust	2,472	958
	Guy's & St. Thomas' NHS Foundation Trust	1,561	708
	Imperial College Healthcare NHS Trust	1,081	466
	King's College Hospital NHS Foundation Trust	573	238
	Manchester University NHS Foundation Trust	520	270
	Moorfields Eye Hospital NHS Foundation Trust	1,486	518
	Oxford University Hospitals NHS Foundation Trust	956	483
	Royal Free London NHS Foundation Trust	2,173	821
	University College London Hospitals NHS Foundation Trust	3,868	1,516
	University Hospitals Birmingham NHS Foundation Trust	1,881	705
University of Birmingham	University Hospitals Birmingham NHS Foundation Trust	1,881	705
University of Bristol	North Bristol NHS Trust	991	326
	University Hospitals Bristol NHS Foundation Trust	1,362	422
University of Cambridge	Cambridge University Hospitals NHS Foundation Trust	6,403	2,773
	Oxford University Hospitals NHS Foundation Trust	558	322
University of Leeds	Leeds Teaching Hospitals NHS Trust	2,988	1,082
University of Leicester	University Hospitals of Leicester NHS Trust	1,700	628
University of Nottingham	Nottingham University Hospitals NHS Trust	3,262	1,039
University of Oxford	Barts Health NHS Trust	504	280
	Cambridge University Hospitals NHS Foundation Trust	867	486
	Guy's & St. Thomas' NHS Foundation Trust	597	324
	Imperial College Healthcare NHS Trust	513	269
	Oxford University Hospitals NHS Foundation Trust	7,939	3,314
	University Hospital Southampton NHS Foundation Trust	586	289
University of Southampton	University Hospital Southampton NHS Foundation Trust	3,057	1,162

Table 4: High impact collaborations between universities 2011–2018

Criteria: # Co-pubs &gt;= 1,000, # Top20% P &gt;= 100

Full Name (Actors.Txt)	Full Name (Actors.Txt2)	P[full]	P[top20%]
Aston University	University of Birmingham	1,061	297
Imperial College London	King's College London	2,101	1,007
	London School of Hygiene & Tropical Medicine	2,085	1,018
	Queen Mary University of London	1,056	498
	University College London	3,066	1,380
	University of Cambridge	1,625	872
	University of Oxford	2,652	1,409
King's College London	Imperial College London	2,101	1,007
	Queen Mary University of London	1,065	504
	The University of Manchester	1,005	458
	University College London	4,265	1,821
	University of Cambridge	1,339	717
	University of East London	1,418	477
London School of Hygiene & Tropical Medicine	University of Oxford	1,803	929
	Imperial College London	2,085	1,018
	University College London	1,900	852
Queen Mary University of London	University of Oxford	1,322	684
	Imperial College London	1,056	498
	King's College London	1,065	504
The University of Manchester	University College London	1,831	823
	King's College London	1,005	458
	University College London	1,299	622
University College London	University of Oxford	1,021	513
	Imperial College London	3,066	1,380
	King's College London	4,265	1,821
University of Birmingham	London School of Hygiene & Tropical Medicine	1,900	852
	Queen Mary University of London	1,831	823
	The University of Manchester	1,299	622
	University of Bristol	1,273	635
	University of Cambridge	2,378	1,210
	University of Oxford	2,965	1,505
University of Brighton	Aston University	1,061	297
	University of Oxford	1,079	457
University of Bristol	University of Sussex	1,489	466
	University College London	1,273	635
University of Cambridge	University of Oxford	1,153	622
	Imperial College London	1,625	872
	King's College London	1,339	717
	University College London	2,378	1,210
University of East London	University of Oxford	2,442	1,252
	King's College London	1,418	477
University of Exeter	University of Plymouth	1,165	414
University of Hull	University of York	1,352	435
University of Oxford	Imperial College London	2,652	1,409
	King's College London	1,803	929
	London School of Hygiene & Tropical Medicine	1,322	684
	The University of Manchester	1,021	513
	University College London	2,965	1,505
	University of Birmingham	1,079	457
	University of Bristol	1,153	622
	University of Cambridge	2,442	1,252
	University of Southampton	1,231	577
	University of Exeter	1,165	414
University of Plymouth	University of Oxford	1,231	577
University of Southampton	University of Brighton	1,489	466
University of Sussex	University of Hull	1,352	435

## 3.2 Results by Organisation

This section contains a two-page report for each organisation that was selected by the criteria described in Section 2.1. These reports contain the results of a standard bibliometric performance report for the period of analysis (2011–2018/19), a collaboration profile and a research profile. For more detailed description of the method, we refer to Section 2. The organisations included are included in alphabetical order. On the even page (left-hand side) we included a brief discussion of the results on the odd page (right-hand side).

### 3.2.1 Aston University

Aston University is a public university situated in the city centre of Birmingham.

#### Performance

Researchers from Aston University were involved in almost 1,800 publications covered in the Web of Science (WoS) in the period from 2011 to 2018. Part of the output (85%) was published in research articles, with the remainder in the form of reviews. A high number of publications (82%) were co-authored with other organisations. If the publications are fractionalised by the number of organisations co-authoring the papers, the output of Aston University is 785 publications. These publications were cited close to 17,000 times and 26 out of 100 (PP[top20%]: 0.26) belong to the top 20% most cited publications in their own field. The average (citation-based) impact per paper normalised by field and year (MNCS) is 1.26, which indicates that they are cited 26% more than the expected (or world) average. Finally, the MNJS measures the impact of journals in which Aston University publishes at a rate of 1.09, indicating that it is publishing in around world average-impact journals.

#### Profiles

As can be seen, the output distribution shows that the main type involves international collaboration (P[full]=876), whereas national collaboration and single institution count respectively for 599 and 317 publications. However, the impact of the three types does not differ substantially, being for the three types above world average. The papers in international collaboration though are the ones with the highest impact (MNCS: 1.34 and PP[top20%]: 0.30).

The research profile shows the top 25 subject categories based on the number of publications for Aston University. As the figure shows, the most important of these is *Ophthalmology* (P: 240, MNCS: 1.33, PP[top20%]: 0.26), followed by *Multidisciplinary Sciences* (P: 137, MNCS: 1.04, PP[top20%]: 0.26), *Pharmacology & Pharmacy* (P: 131, MNCS: 1.08, PP[top20%]: 0.23), *Biochemistry & Molecular Biology* (P: 116, MNCS: 1.34, PP[top20%]: 0.31) and *Neurosciences* (P: 112, MNCS: 0.86, PP[top20%]: 0.22). At the lower end of the profile, we discern some categories with extremely high MNCS or PP[top20%] values. It should be noted, however, that in these categories the number of publications is very low.



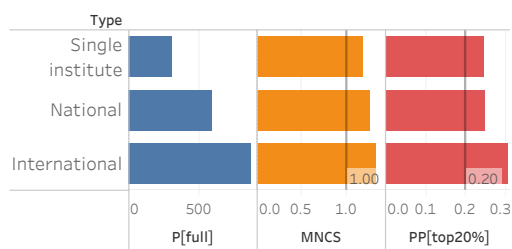
### Aston University

#### Bibliometric performance and profiles of the biomedical & health research

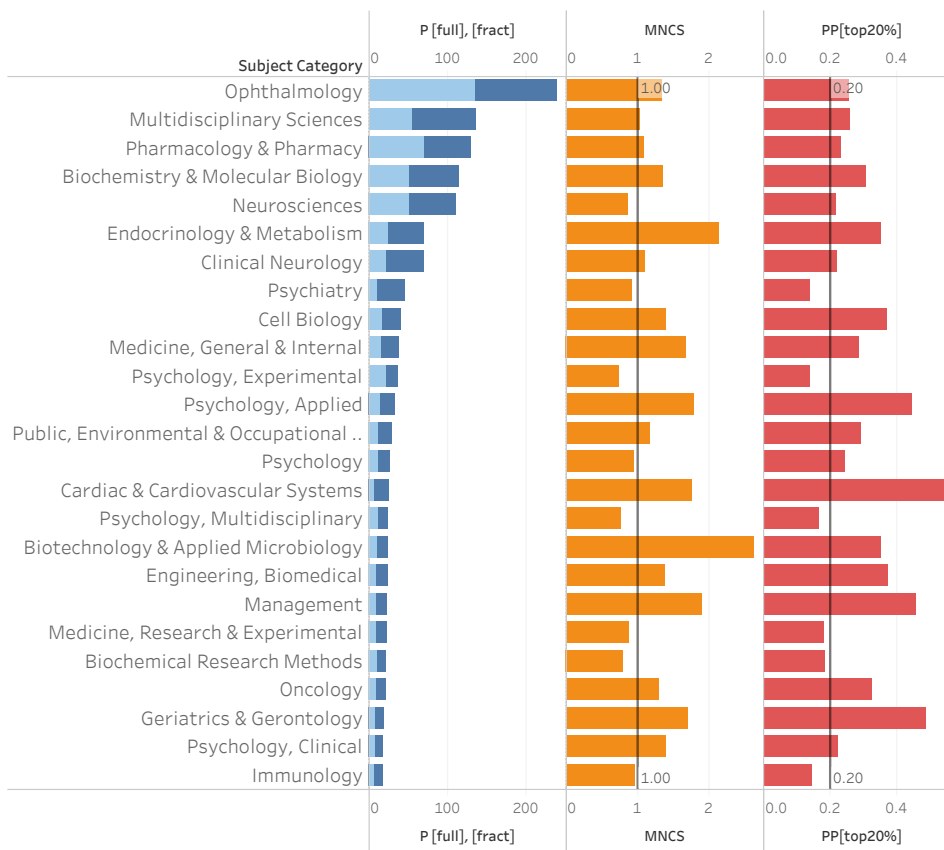
##### Performance

	Article	Review	Overall
P[full]	1,528	264	<b>1,792</b>
P[fract]	646	139	<b>784</b>
PP[collab]	0.85	0.69	<b>0.82</b>
PP[int collab]	0.51	0.37	<b>0.49</b>
TCS	11,516	5,385	<b>16,901</b>
P[top20%]	377	138	<b>514</b>
PP[top20%]	0.21	0.51	<b>0.27</b>
MNCS	1.00	2.49	<b>1.26</b>
MNJS	1.00	1.50	<b>1.09</b>

##### Collaboration profile



##### Research profile



### 3.2.2 Barts Health NHST

Barts Health NHST operates from four major hospital sites (The Royal London, St Bartholomew's, Whipps Cross and Newham) and a number of community locations, including Mile End hospital.

#### Performance

The table shows that a total of 7,524 Web of Science (WoS) publications (i.e. articles and reviews) were produced with contributions from researchers from Barts Health NHST, in 87% of the cases in collaboration with other organisations. If we fractionalise the publications by the number of organisations co-authoring the papers, the output of Barts Health NHST is 2,708 publications, of which 2,100 are classified as articles and 608 as reviews. This selected output has been cited 104,452 times (TCS) (excluding self-citations). The MNCS value for the whole NHST is 1.34 or, in other words, 34% higher than world average in the same fields and publication years. Barts Health NHST selected publications appear in journals with an impact value also higher than world average (MNJS: 1.27). In terms of the PP[top20%] indicator, 28% of publications published by Barts Health NHST are among the upper top 20% of the most highly cited papers worldwide. This means that Barts Health NHST has 1.4 times more top publications than world average from the 20% threshold in the same fields and publication years.

#### Profiles

The collaboration profile summarises the collaboration activity of Barts Health NHST in the 2011–2018 period for the selected publications. Slightly more than half of the publications were produced in international collaboration (MNCS: 1.65, PP[top20%]: 0.32), followed by national collaboration (MNCS: 1.23, PP[top20%]: 0.27) and non-collaborative publications (13%) (MNCS: 1.14, PP[top20%]: 0.25). This suggests that the highest impact is obtained from publications derived from international collaboration.

The research profile shows the top 25 subject categories based on the selected publications for Barts Health NHST. As the figure shows, the most important of these is *General & Internal Medicine* (P: 572, MNCS: 2.0, PP[top20%]: 33%), followed by *Cardiac & Cardiovascular System* (P: 456, MNCS: 1.26, PP[top20%]: 29%), *Multidisciplinary Sciences* (P: 395, MNCS: 1.24, PP[top20%]: 29%) with many of the papers published in *PLoS ONE* and *Scientific Reports*, followed by *Oncology* (P: 340, MNCS: 1.74, PP[top20%]: 37%) and *Surgery* (P: 323, MNCS: 1.22, PP[top20%]: 28%). As the figure shows, the impact of the publications in these main fields of activity is high.

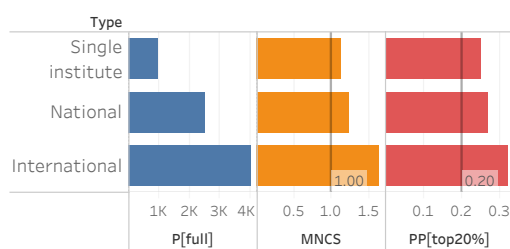
### Barts Health NHS Trust

#### Bibliometric performance and profiles of the biomedical & health research

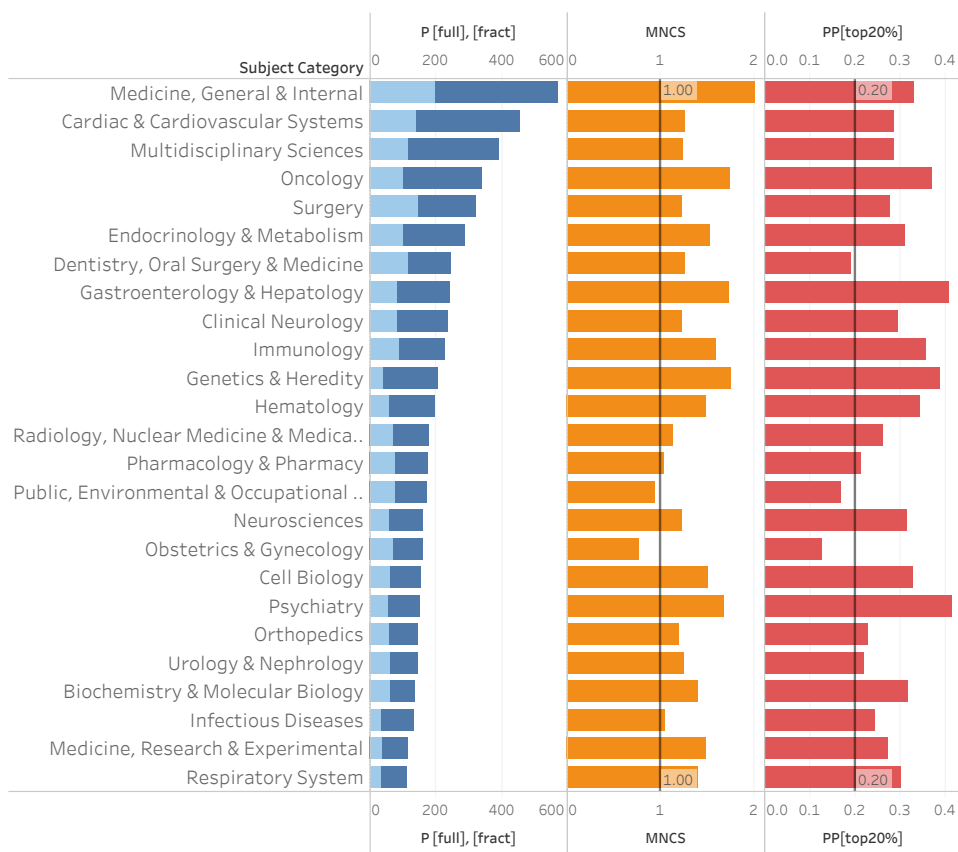
##### Performance

	Article	Review	Overall
P[full]	6,132	1,392	7,524
P[fract]	2,100	608	2,708
PP[collab]	0.89	0.81	0.87
PP[int collab]	0.54	0.52	0.54
TCS	82,043	22,409	104,452
P[top20%]	2,002	614	2,615
PP[top20%]	0.25	0.40	0.28
MNCS	1.19	1.87	1.34
MNJS	1.20	1.53	1.27

##### Collaboration profile



##### Research profile



### 3.2.3 Birkbeck – University Of London

Birkbeck, University of London is a research university located in Bloomsbury, London, England. Birkbeck is London's only specialist provider of evening higher education.

#### Performance

The performance table shows that a total of 1,767 publications in Web of Science (WoS) (i.e. articles and reviews) were produced with the contribution of researchers from Birkbeck, University of London, in 83% of the cases in collaboration with other organisations. If we fractionalise the publications by the number of organisations co-authoring the papers, the output of Birkbeck, University of London is 796 publications, of which 729 are classified as articles and 67 as reviews.

This selected output has been cited 17,474 times (TCS). The MNCS value for the analysed output is 1.39 or, in other words, 39% higher than world average in the same fields and publication years. Birkbeck, University of London selected output appears in journals with an impact value also higher than world average (MNJS: 1.38). In terms of the PP[top20%] indicator, 29% of selected publications published by Birkbeck, University of London are among the upper top 20% of the most highly cited papers worldwide. This means that Birkbeck, has 1.45 times more top publications than expected (world average) from the 20% threshold in the same fields and publication years.

#### Profiles

The collaboration figure analyses the selected output of Birkbeck, University of London in the 2011–2018 period. Slightly more than half of the publications were produced in international collaboration (51%, MNCS: 1.51, PP[top20%]: 0.32), followed by national collaboration (32%, MNCS: 1.43, PP[top20%]: 0.30) and non-collaborative publications (17%, MNCS: 1.26, PP[top 20%]: 0.25). Even though all the collaboration types show impact above world average, the highest impact is obtained from publications derived from international and national collaboration .

The research profile shows the top 25 subject categories based on the number of selected publications for Birkbeck, University of London. As the figure shows, the most important of these are *Experimental Psychology* (more than 200 publications, impact at world average)) and *Multidisciplinary Sciences* (P: 172, MNCS: 1.86, PP[top20%]: 0.39), having papers published in *PLoS ONE* the most common ones. The other important fields are *Biochemistry & Molecular Biology*, *Neurosciences* and *Developmental Psychology*. The rest of the profile shows some categories with extremely high or low MNCS or PP[top20%] values. It should be noted, however, that in these categories the number of publications is very low.

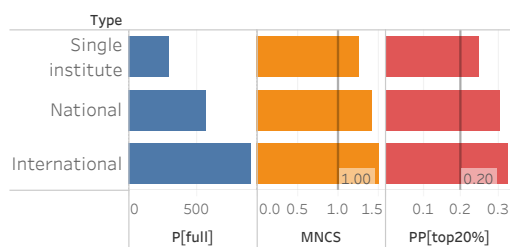
## Birkbeck, University of London

## Bibliometric performance and profiles of the biomedical &amp; health research

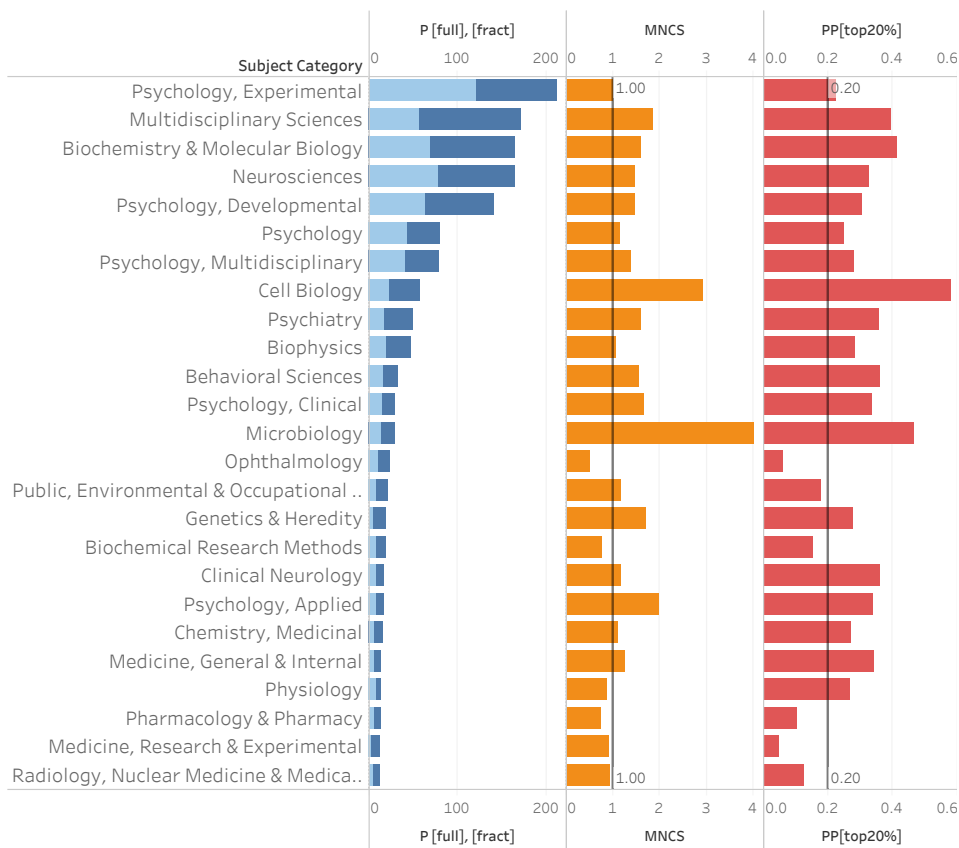
## Performance

	Article	Review	Overall
P[full]	1,641	126	<b>1,767</b>
P[fract]	729	67	<b>796</b>
PP[collab]	0.84	0.76	<b>0.83</b>
PP[int collab]	0.52	0.41	<b>0.51</b>
TCS	14,715	2,729	<b>17,444</b>
P[top20%]	492	75	<b>567</b>
PP[top20%]	0.26	0.60	<b>0.29</b>
MNCS	1.21	3.29	<b>1.39</b>
MNJS	1.26	2.68	<b>1.38</b>

## Collaboration profile



## Research profile



### 3.2.4 Brunel University London

Brunel University London is a research university located in the Uxbridge area of London.

#### Performance

The performance table shows that a total of 1,997 publications in Web of Sciences (WoS) (i.e. articles and reviews) were produced with the contribution of researchers from Brunel University of London, between 2011 and 2018, in 86% of the cases in collaboration with other organisations. This is why if the publications are fractionalised by the number of organisations co-authoring the papers, the selected output of Brunel University London is 839 publications (P [fract]), of which 756 are classified as articles and 83 as reviews. This output has been cited 14,279 times (TCS) (excluding self-citations). The MNCS value of the selected output is 1.09 or, in other words, 9% higher than world average in the same fields and publication years. The analysed output of Brunel University London appears in journals with an impact value also around world average (MNJS: 1.06). In terms of the PP[top20%] indicator, 23% of the output analysed from Brunel University London is around 20% of the most highly cited papers worldwide (1.15 times more top publications than world average).

#### Profiles

The collaboration profile clearly shows that the main type involves largely international collaboration (P[full]: 1,082), whereas national collaboration and single institution count respectively for 632 and 283 publications. However, the impact of publications involving national collaboration is the highest (MNCS: 1.22, and PP[top20%]: 0.27), followed by international collaboration (MNCS: 1.14, and PP[top20%]: 0.23). The impact of the publications with only researchers from Brunel University London involved is slightly below world average for MNCS with a value of 0.93, and just world average for PP[top 20%]=0.20.

As the research profile figure shows, the most important category are *Multidisciplinary Sciences* (P: 135, MNCS: 1.00, PP[top20%]: 0.23) and *Sport Sciences* (P: 124, MNCS: 1.31 and PP[top20%]: 0.29). Other important subject categories in terms of the output are: *Public, Environmental & Occupational Sciences, Rehabilitation, General & Internal Medicine, Health Care Sciences & Services* and *Neurosciences*. At the lower end of the profile, some categories appear with extremely high or low MNCS or PP[top20%] values. It should be noted, however, that in these categories the number of publications is very low.

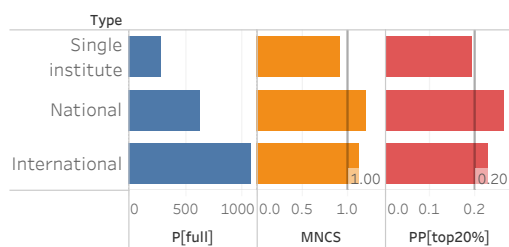
## Brunel University London

### Bibliometric performance and profiles of the biomedical & health research

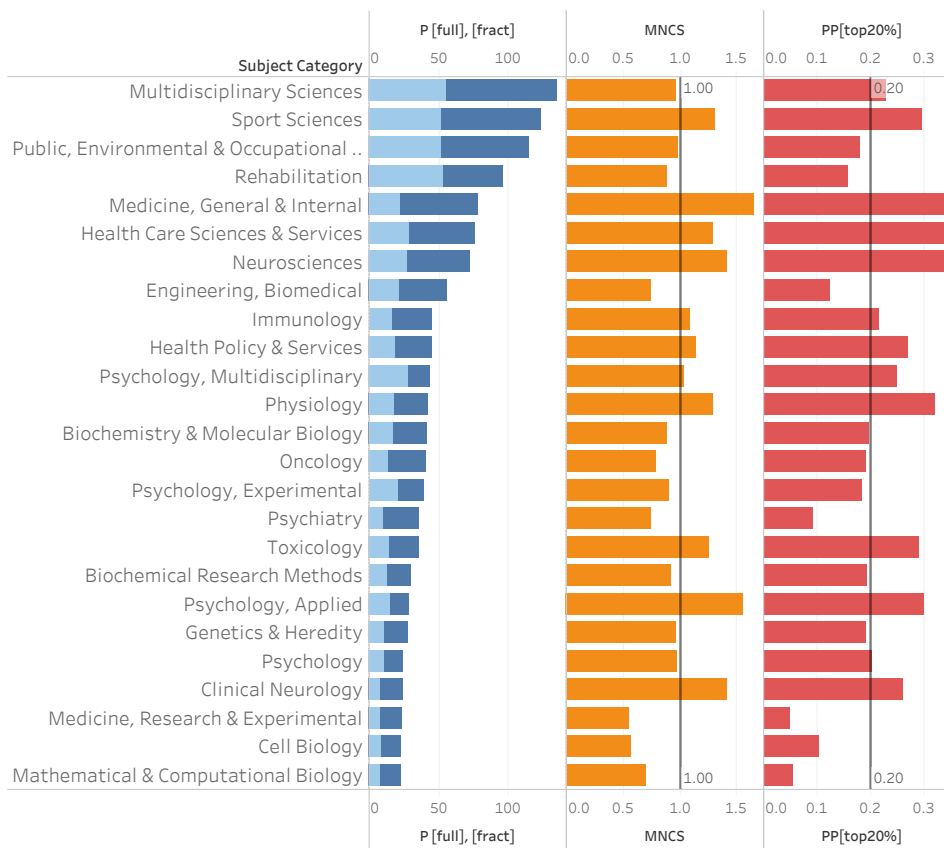
#### Performance

	Article	Review	Overall
P[full]	1,806	191	<b>1,997</b>
P[fract]	756	83	<b>839</b>
PP[collab]	0.86	0.83	<b>0.86</b>
PP[int collab]	0.54	0.52	<b>0.54</b>
TCS	11,375	2,904	<b>14,279</b>
P[top20%]	387	112	<b>500</b>
PP[top20%]	0.20	0.55	<b>0.23</b>
MNCS	0.95	2.36	<b>1.09</b>
MNJS	0.98	1.73	<b>1.06</b>

#### Collaboration profile



#### Research profile



### 3.2.5 Cambridge University Hospitals NHST

Cambridge University Hospitals NHST is a family of hospitals comprising Addenbrooke's and The Rosie.

#### Performance

Researchers at the Cambridge University Hospitals NHST were involved in more than 8,905 publications in the Web of Science (WoS) in the period from 2011 to 2018. The vast majority of the output (86%) was published in research articles, with the remainder in the form of reviews. Around 89% of the publications are co-authored with other organisations, this is why when the output is fractionalised by the number of organisations involved, 2,979 publications are assigned to Cambridge University Hospitals NHST. These publications were cited 169,156 times. Almost 35 out of 100 (PP[top20%]: 0.34) belong to the top 20% most cited publications in their own field, which is around 70% above the expected ratio (or world average) of 0.20. The average (citation-based) impact per paper normalised by field and year (MNCS) is 1.56, which indicates that they are cited 56% more than the expected (or world) average. Finally, the MNJS measures the impact of journals in which Cambridge University Hospitals NHST publishes at a rate of 1.50, indicating that it is very successful in publishing in high-impact journals.

#### Profiles

The highest share of the output involves international collaboration, which also attracts the highest number of citations, both by MNCS and PP[top20%]. From both perspectives, the normalised impact is around 100% higher than world average. The impact of the other collaboration types is also above world average.

The research profile shows the top 25 Subject Categories based on the number of publications for Cambridge University Hospitals NHST. As the figure shows, the most important of these is *Endocrinology & Metabolism* (P:667, MNCS:1.70, PP[top20%]: 0.38), followed by *Oncology* (P: 623, MNCS: 1.46, PP[top 20%]: 0.32), *Multidisciplinary Sciences* (P: 603, MNCS: 2.10, PP[top20%]: 0.40), *Genetics & Heredity* (P: 516, MNCS: 2.04, PP[top20%]: 0.40) and *General & Internal Medicine* (P: 408, MNCS: 2.20, PP[top20%]: 0.36). In general, the top 25 Subject categories have impact high or very high, only a few of them have an impact around world average (*Surgery, Radiology, Nuclear Medicine & Medical Imaging* and *Pediatrics*). It should be noted, however, that for some of these categories the number of publications is very low.



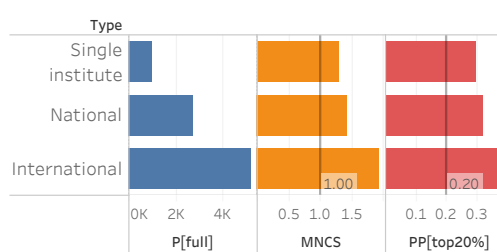
### Cambridge University Hospitals NHS Foundation Trust

#### Bibliometric performance and profiles of the biomedical & health research

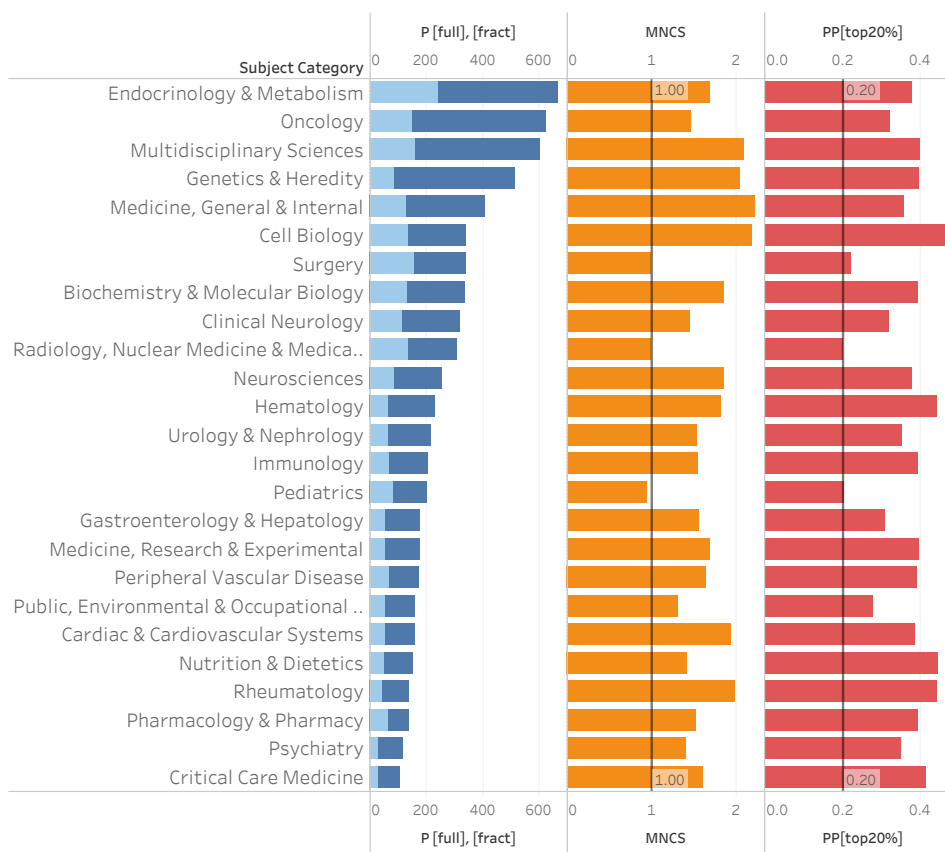
##### Performance

	Article	Review	Overall
P[full]	7,622	1,283	8,905
P[fract]	2,400	579	2,979
PP[collab]	0.91	0.79	0.89
PP[int collab]	0.60	0.47	0.58
TCS	139,035	30,234	169,269
P[top20%]	3,023	669	3,692
PP[top20%]	0.31	0.48	0.34
MNCS	1.42	2.17	1.57
MNJS	1.41	1.86	1.50

##### Collaboration profile



##### Research profile



### 3.2.6 City, University of London

City, University of London is a research university in London, and a member institution of the federal University of London.

#### Performance

The performance table shows that a total of 2,045 publications in the Web of Sciences (WoS) (i.e. articles and reviews) were produced with contributions from City, University of London, between 2011 and 2018, in 86% of the cases in collaboration with other organisations. This is why if the publications are fractionalised by the number of organisations co-authoring the papers, the output of City, University of London, is 854 publications (P[fract]), of which 777 are classified as articles and 77 as reviews. The selected output has been cited 14,404 times (TCS) (excluding self-citations). The MNCS value of the analysed output is 1.11 or, in other words, 11% higher than world average in the same fields and publication years. The analysed output of City, University of London appears in journals with an impact value also slightly higher than world average (MNJS: 1.11). In terms of the PP[top20%] indicator, 22% of the output analysed from City, University of London is around 20% of the most highly cited papers worldwide; or in other words, around the expected (world average) number of publications in the 20% threshold in the same fields and publication years.

#### Profiles

The collaboration figure analyses the selected output of City, University of London in the 2011–2018 period. Fewer than half of publications were produced in international collaboration (47%) (MNCS: 1.13, PP[top20%]: 0.23), closely followed by national collaboration (39%) (MNCS: 1.15, PP[top20%]: 0.24) and finally a much lower number of non-collaborative publications (14%) (MNCS: 1.06), PP[top20%]: 0.20). The publications in international and national collaboration show impact slightly above world average, while the publications without collaboration show an impact at the world average.

The research profile shows the top 25 subject categories based on the number of publications for City, University of London. As the figure shows, the most important of these are *Ophthalmology*, with around 200 publications and *Experimental Psychology*, followed by *Nursing*, *Multidisciplinary Sciences*, *Public, Environmental & Occupational Health*, *General & Internal Medicine*, *Psychiatry*, *Neurosciences*, and *Health Care Sciences & Services*. Some of the 25 subject categories show very high or low MNCS or PP[top20%] values, but it should be noted, however, if in these categories the number of publications is very low.

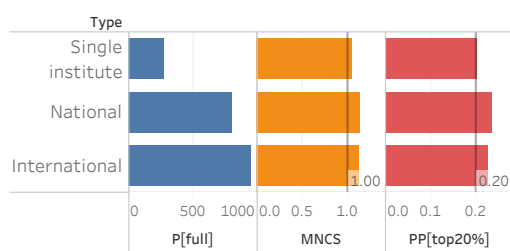
## City, University London

## Bibliometric performance and profiles of the biomedical &amp; health research

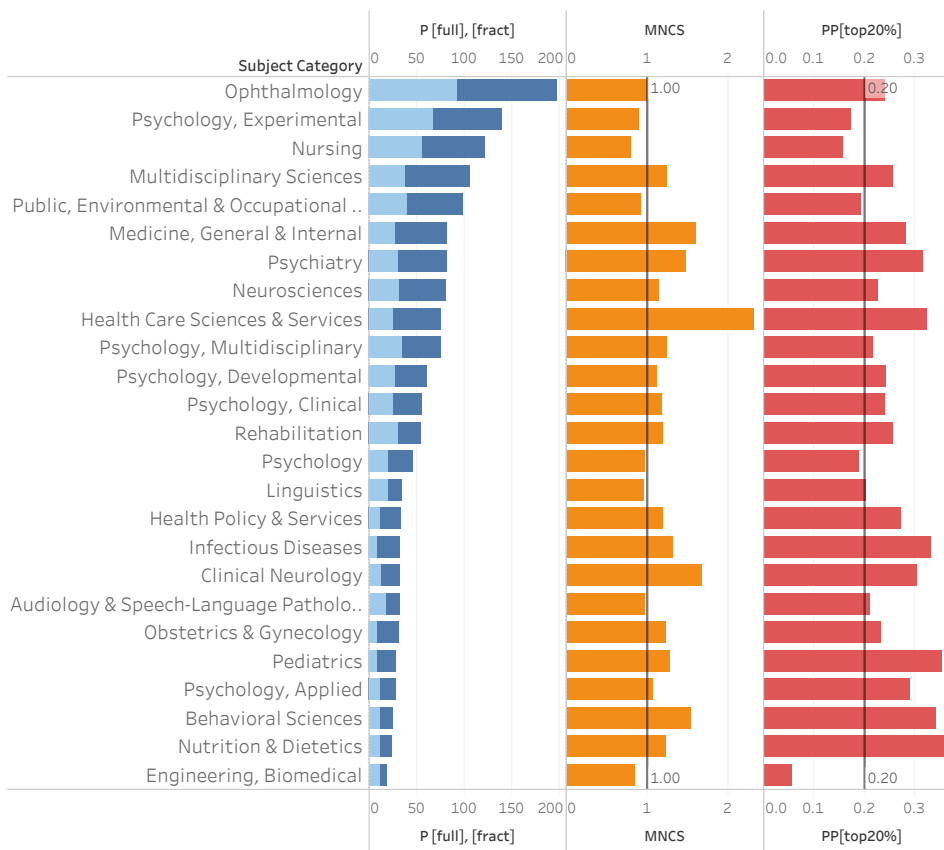
## Performance

	Article	Review	Overall
P[full]	1,862	183	<b>2,045</b>
P[fract]	777	77	<b>854</b>
PP[collab]	0.86	0.85	<b>0.86</b>
PP[int collab]	0.47	0.46	<b>0.47</b>
TCS	12,032	2,353	<b>14,385</b>
P[top20%]	414	93	<b>507</b>
PP[top20%]	0.20	0.47	<b>0.22</b>
MNCS	0.98	2.49	<b>1.11</b>
MNJS	1.05	1.61	<b>1.10</b>

## Collaboration profile



## Research profile



### 3.2.7 Durham University

Durham University (legally the University of Durham) is a collegiate public research university in Durham, England.

#### Performance

Researchers at Durham University were involved in more than 2,643 publications in the Web of Science (WoS) in the period from 2011 to 2018. A majority of the selected output (almost 90%) was published in research articles, with the remainder in the form of reviews. Around 85% of the publications are co-authored with other organisations, when the selected output is fractionalised by the number of organisations involved, 1,105 publications are from Durham University. These publications were cited 25,072 times and 29 out of 100 (PP[top20%]: 0.29) belong to the top 20% most cited publications in their own field, which is around 45% above the expected ratio (or world average) of 0.20. The average (citation-based) impact per paper normalised by field and year (MNCS) is 1.32, which indicates that they are cited 32% more than the expected (or world) average. Finally, the MNJS measures the impact of journals in which Durham University publishes at a rate of 1.25, indicating that it is quite successful in publishing in high impact journals.

#### Profiles

The highest share of the output involves international collaboration, which also attracts the highest number of citations, both by MNCS and PP[top20%]. From both perspectives, the normalised impact is around 50% higher than expected (or world) average. The impact of the other collaboration types even though is also above world average is lower than the papers in international collaboration.

The research profile shows the top 25 subject categories based on the selected publications for Durham University. As the figure shows, the most important of these is *Multidisciplinary Sciences* (P: 324, MNCS: 1.71, PP[top20%]: 0.34), with many of the papers published in *PLoS ONE* and *Scientific Reports*. Other important subject categories in terms of the number of publications are: *Public, Environmental & Occupational Sciences* (P: 179, MNCS: 1.16, PP[top20%]: 0.27), *Biochemistry & Molecular Biology* (P: 121, MNCS: 1.32, PP[top20%]: 0.32), *Neurosciences* (P: 110, MNCS: 1.07, PP[top 20%]: 0.22), *General & Internal Medicine* (P: 91, MNCS: 2.52, PP[top 20%]: 0.55), and *Psychiatry* (P: 89, MNCS: 0.93, PP[top20%]: 0.19). At the lower end of the profile, some categories appear to have extremely high or low MNCS or PP[top 20%] values. It should be noted, however, that in these categories the number of publications is very low.

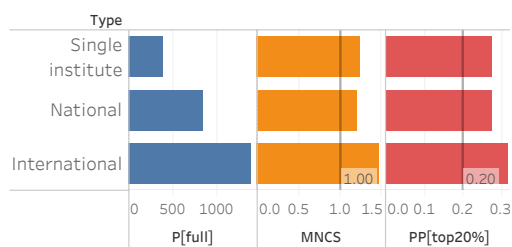
## Durham University

### Bibliometric performance and profiles of the biomedical & health research

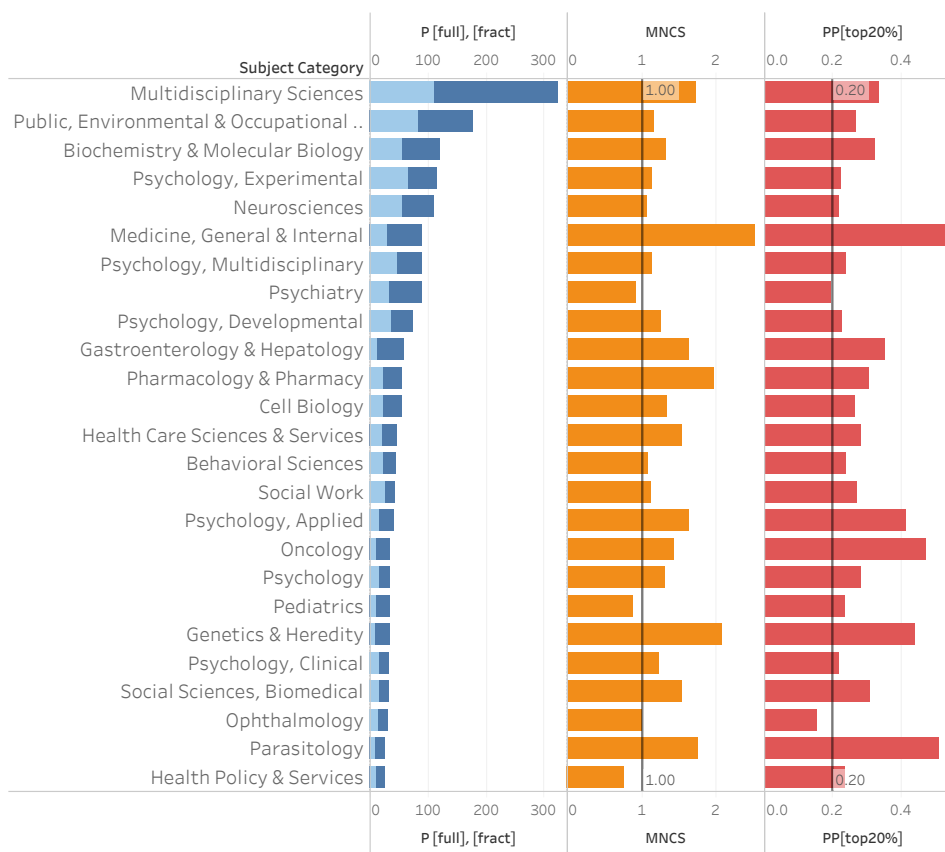
#### Performance

	Article	Review	Overall
P[full]	2,385	258	<b>2,643</b>
P[fract]	990	115	<b>1,105</b>
PP[collab]	0.86	0.80	<b>0.85</b>
PP[int collab]	0.54	0.45	<b>0.53</b>
TCS	19,600	5,472	<b>25,072</b>
P[top20%]	697	147	<b>844</b>
PP[top20%]	0.26	0.52	<b>0.29</b>
MNCS	1.17	2.55	<b>1.32</b>
MNJS	1.16	2.02	<b>1.25</b>

#### Collaboration profile



#### Research profile



### 3.2.8 Great Ormond Street Hospital for Children NHS Foundation Trust

Great Ormond Street Hospital for Children NHS Foundation Trust is a center for treating sick children and has the widest range of specialists under one roof.

#### Performance

The performance table shows that a total of 4,556 were produced with the contribution of researchers from Great Ormond Street Hospital for Children NHS Foundation Trust, in 92% of the cases in collaboration with researchers from other organisations. If we fractionalise the publications by the number of organisations co-authoring the papers, the output is 1,381 publications, of which 1,141 are classified as articles and 240 as reviews. This output has been cited 59,158 times (TCS). The MNCS value for the analysed output is 1.21 or, in other words, 21% higher than world average in the same fields and publication years. Great Ormond Street Hospital for Children NHS Foundation Trust selected output appears in journals with an impact value also higher than world average (MNJS: 1.22). In terms of the PP[top20%] indicator, 25% of selected publications published by Great Ormond Street Hospital for Children NHS Foundation Trust are among the upper top 20% of the most highly cited papers worldwide.

#### Profiles

The collaboration figure analyses the selected output of Great Ormond Street Hospital for Children NHS Foundation Trust in the 2011–2018 period. Slightly more than half of the publications were produced in international collaboration (56%, MNCS: 1.51, PP[top20%]: 0.31), followed by national collaboration (36%, MNCS: 1.24, PP[top20%]: 0.28) and non-collaborative publications (8%, MNCS: 0.82, PP[top20%]: 0.15). The highest impact, above world average, is obtained from publications involving collaboration, while the few publications with no collaboration show an impact lower than the expected (world) average.

The research profile shows the top 25 subject categories based on the number of selected publications for Great Ormond Street Hospital for Children NHS Foundation Trust. As the figure shows, the most important of these is *Pediatrics* (P: 667, MNCS: 0.92, PP[top20%]: 0.18), followed by *Clinical Neurology* (P: 363, MNCS: 1.37, PP[top20%]: 0.29), *Genetics & Heredity* (P: 340, MNCS: 1.83, PP[top20%]: 0.41), *Surgery* (P: 223, MNCS: 1.05, PP[top20%]: 0.20), *Hematology* (P: 192, MNCS: 1.59, PP[top20%]: 0.37), and *Cardiac & Cardiovascular Systems* (P: 174, MNCS: 1.32, PP[top20%]: 0.31). The rest of the profile shows some categories with extremely high or low MNCS or PP[top20%] values, but for some of these categories the number of publications is very low.

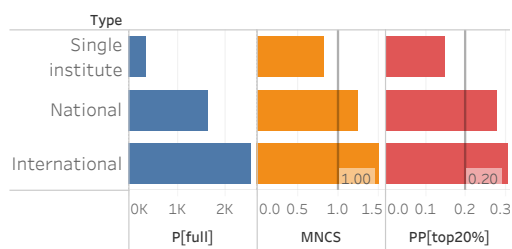
### Great Ormond Street Hospital for Children NHS Foundation Trust

#### Bibliometric performance and profiles of the biomedical & health research

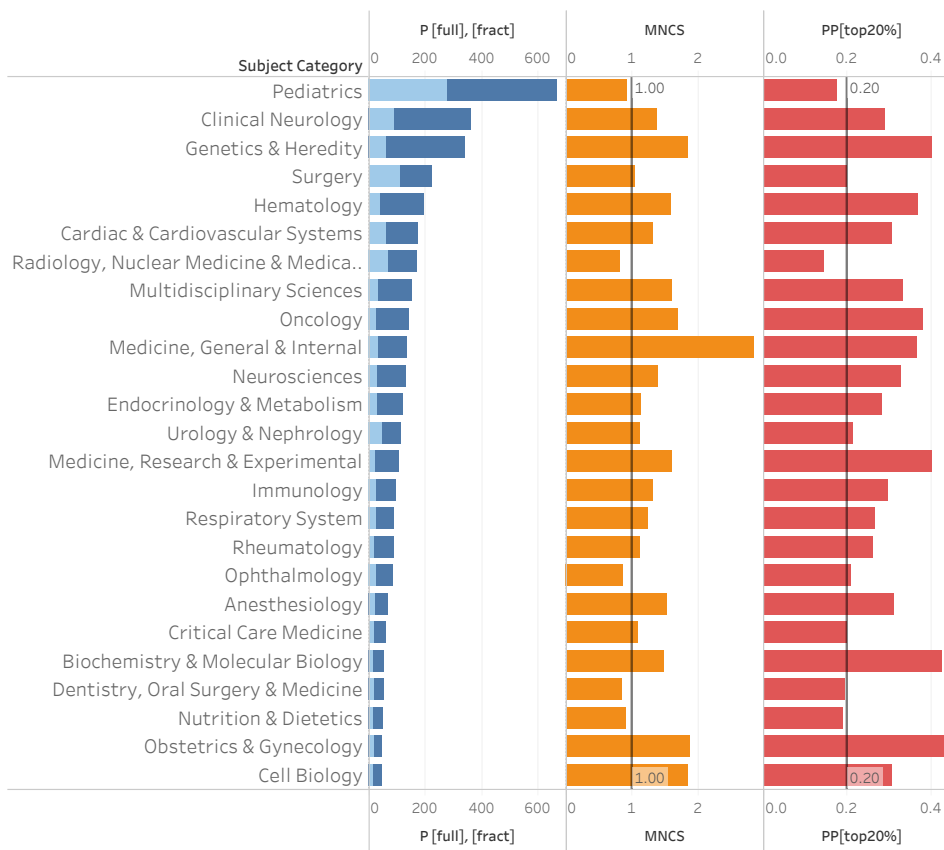
##### Performance

	Article	Review	Overall
P[full]	3,924	632	<b>4,556</b>
P[fract]	1,140	240	<b>1,380</b>
PP[collab]	0.92	0.88	<b>0.92</b>
PP[int collab]	0.56	0.50	<b>0.55</b>
TCS	51,238	7,922	<b>59,160</b>
P[top20%]	1,336	245	<b>1,581</b>
PP[top20%]	0.24	0.31	<b>0.25</b>
MNCS	1.16	1.46	<b>1.21</b>
MNJS	1.19	1.37	<b>1.22</b>

##### Collaboration profile



##### Research profile



### 3.2.9 Guy's and St Thomas' NHS Foundation Trust

Guy's and St Thomas' NHS Foundation Trust runs Guy's Hospital in London Bridge, St Thomas' Hospital in Waterloo, Evelina London Children's Hospital and community services in Lambeth and Southwark.

#### Performance

Researchers at Guy's and St Thomas' NHS Foundation Trust were involved in more than 10,164 publications in the Web of Science (WoS) in the period from 2011 to 2018. A majority of the output (around 83%) was published in research articles, with the remainder in the form of reviews. Around 89% of the publications are co-authored with researchers from other organisations, when the selected output is fractionalised by the number of organisations then 3,452 publications are from Guy's and St Thomas' NHS Foundation Trust. These selected publications were cited 156,494 times and 29 out of 100 (PP[top20%]: 0.29) belong to the top 20% most cited publications in their own field, which is around 45% above the expected ratio (or world average) of 0.20. The average (citation-based) impact per paper normalised by field and year (MNCS) is 1.33, which indicates that they are cited 33% more than the expected (or world) average. Finally, the MNJS, measures the impact of journals in which Guy's and St Thomas' NHS Foundation Trust publishes, is 1.28, indicating that it is quite successful in publishing in high-impact journals.

#### Profiles

The highest share of the output involves international collaboration, which also attracts the highest number of citations, both by a MNCS value of 1.69 and a PP[top20%] value of 0.35. The impact of the other collaboration types even though are also above world average are lower than the papers in international collaboration.

The research profile shows the top 25 Subject Categories based on the number of publications for Guy's and St Thomas' NHS Foundation Trust. As the figure shows, the most important of these is *Cardiac & Cardiovascular Systems* (P: 628, MNCS: 1.22, PP[top20%]: 0.31), followed by *Oncology* (P: 557, MNCS: 1.42, PP[top 20%]: 0.32), *General & Internal Medicine* (P: 538, MNCS: 2.12, PP[top20%]: 0.29), *Radiology, Nuclear Medicine & Medical Imaging* (P: 464, MNCS: 1.26, PP[top20%]: 0.26), *Urology & Nephrology* (P: 418, MNCS: 1.47, PP[top20%]: 0.36), *Dermatology* (P: 398, MNCS: 1.33, PP[top20%]: 0.30) and *Surgery* (P: 396, MNCS: 1.11, PP[top20%]: 0.24). At the lower end of the profile, we discern some categories with extremely high MNCS or PP[top20%] values. It should be noted, however, that in these categories the number of publications is very low.

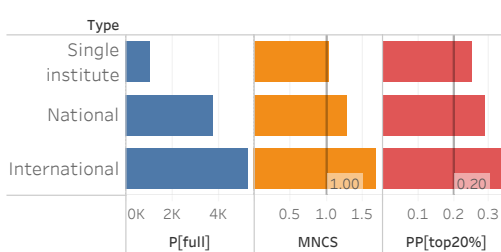


**Guy's & St. Thomas' NHS Foundation Trust**  
Bibliometric performance and profiles of the biomedical & health research

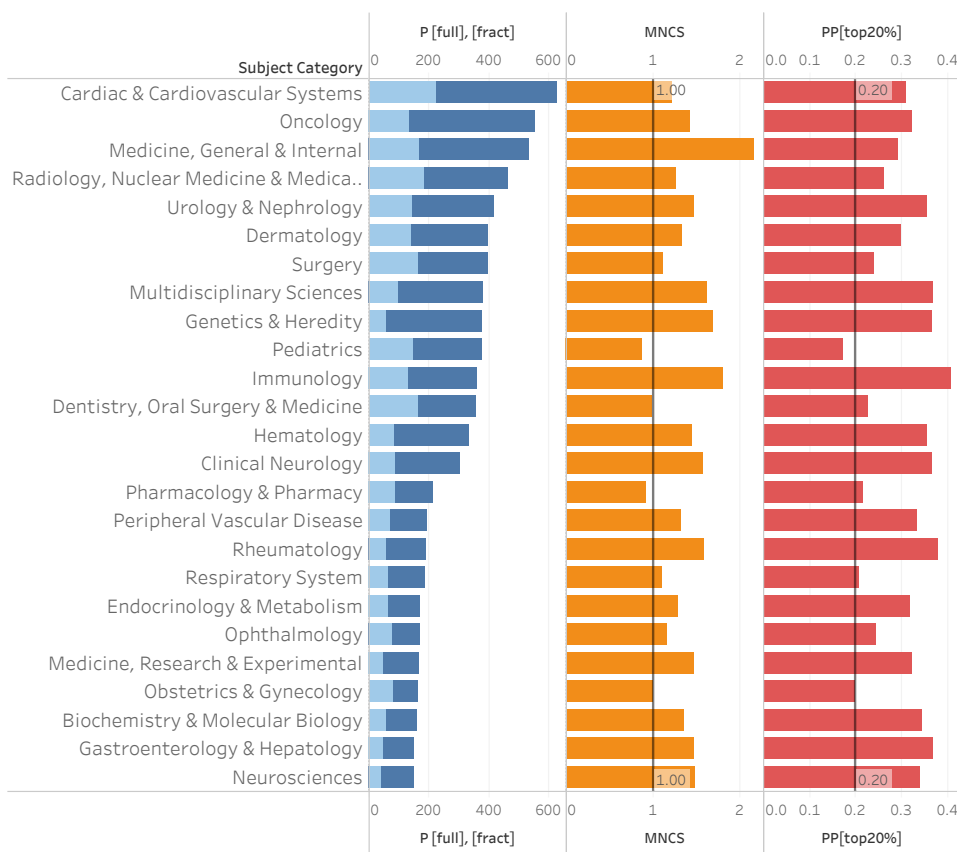
## Performance

	Article	Review	Overall
P[full]	8,478	1,686	10,164
P[fract]	2,770	682	3,452
PP[collab]	0.90	0.85	0.89
PP[int collab]	0.53	0.47	0.52
TCS	132,949	23,731	156,680
P[top20%]	2,979	756	3,735
PP[top20%]	0.27	0.40	0.29
MNCS	1.24	1.72	1.34
MNJS	1.23	1.49	1.28

## Collaboration profile



## Research profile



### 3.2.10 Imperial College Healthcare NHS Trust

Imperial College Healthcare NHS Trust runs five hospitals: Charing Cross Hospital; Hammersmith Hospital; Queen Charlotte's and Chelsea Hospital; St Mary's Hospital and Western Eye Hospital.

#### Performance

Researchers at the Imperial College Healthcare NHS Trust were involved in almost 7,038 publications in the period from 2011 to 2018. Part of the output (82%) was published in research articles, with the remainder in the form of reviews. Almost all publications (87%) are co-authored with other organisations. If the publications are fractionalised by the number of organisations co-authoring the papers, the output is 2,605 publications, of which 2,027 are classified as articles and 578 as reviews. These publications were cited close to 93,637 times. Almost 30 out of 100 (PP[top20%]: 0.29) belong to the top 20% most cited publications in their own field, which is nearly 50% above the expected ratio (or world average) of 0.20. The MNCS (citation-based indicator) is 1.33, which indicates that the selected publications are cited 33% more than the expected (or world) average. Finally, the MNJS measures the impact of journals in which Imperial College Healthcare NHS Trust publishes at a rate of 1.27 (above world average impact journals).

#### Profiles

As can be seen, the selected output distribution shows that the main type involves international collaboration (P[full]: 3,401), followed closely by national collaboration with 2,742 publications, and finally, the publications with no collaboration are 895. In terms of impact, the papers in international collaboration are, as many other analysis show, the ones with the highest impact (MNCS: 1.58 and PP[top20%]: 0.33).

The research profile shows the top 25 subject categories based on the number of publications for Imperial College Healthcare NHS Trust. As the figure shows, the most important of these is *Surgery* (P: 595, MNCS: 1.29, PP[top20%]: 0.29), followed by *General & Internal Medicine* (P: 390, MNCS: 1.43, PP[top20%]: 0.25), *Oncology* (P: 381, MNCS: 1.31, PP[top20%]: 0.30), *Cardiac & Cardiovascular Systems* (P: 362, MNCS: 1.52, PP[top20%]: 0.30), *Radiology, Nuclear Medicine & Medical Imaging* (P: 312, MNCS: 1.16, PP[top20%]: 0.27), and *Multidisciplinary Sciences* (P: 292, MNCS: 1.46, PP[top20%]: 0.36). The publications that appear in the latter were published mainly in *PLoS ONE*, and less frequently in *Scientific Reports* among other scientific journals. At the lower end of the profile, we discern some categories with also very high MNCS or PP[top20%] values. It should be noted, however, that in these categories the number of publications is low.

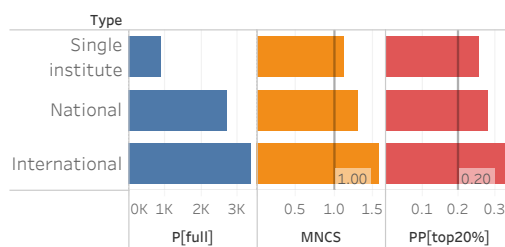
### Imperial College Healthcare NHS Trust

Bibliometric performance and profiles of the biomedical & health research

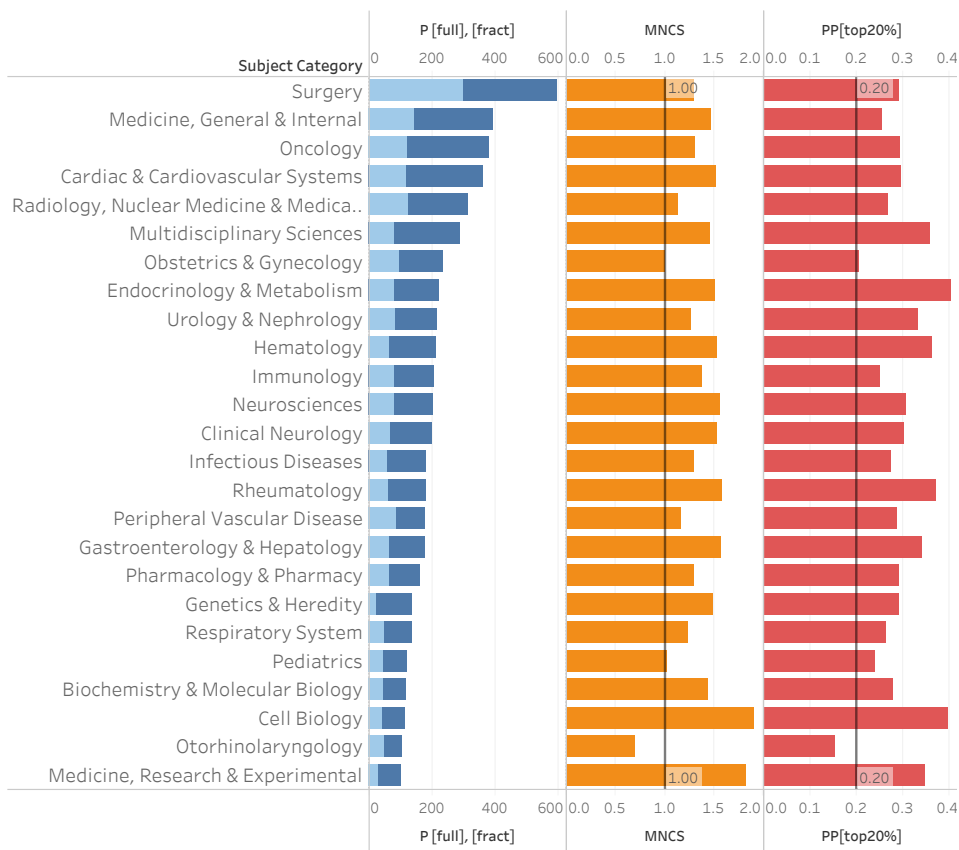
#### Performance

	Article	Review	Overall
P[full]	5,806	1,232	<b>7,038</b>
P[fract]	2,027	578	<b>2,605</b>
PP[collab]	0.89	0.80	<b>0.87</b>
PP[int collab]	0.50	0.39	<b>0.48</b>
TCS	75,428	18,134	<b>93,562</b>
P[top20%]	1,918	509	<b>2,427</b>
PP[top20%]	0.26	0.38	<b>0.29</b>
MNCS	1.22	1.70	<b>1.32</b>
MNJS	1.21	1.48	<b>1.27</b>

#### Collaboration profile



#### Research profile



### 3.2.11 Imperial College London

Imperial College London is a public research university located in London.

#### Performance

Researchers at the Imperial College London were involved in more than 30,130 publications in the period from 2011 to 2018. The majority of the output (85%) was published in research articles, with the remainder in the form of reviews. Around 89% of the publications are co-authored with other organisations, which is why when the output is fractionalised by the number of organisations involved, 10,291 publications are assigned to Imperial College London. The selected publications were cited 488,459 times. Almost 33 out of 100 (PP[top20%]: 0.33) belong to the top 20% most cited publications in their own field, which is around 65% above the expected ratio (or world average) of 0.20. The MNCS (citation-based indicator) is 1.57, which indicates that they are cited 57% more than the expected (or world) average. Finally, the MNJS measures the impact of journals in which Imperial College Healthcare NHS Trust publishes at a rate of 1.49, indicating that it is very successful in publishing in high-impact journals.

#### Profiles

As shown in the collaboration profile, the highest share of the output involves international collaboration, followed by national collaboration, and, finally, no collaboration. In terms of impact, the papers in international collaboration have a slightly higher impact than the other types (MNCS: 1.71 and PP[top20%]: 0.35).

As the research profile figure shows, the most important category is *Multidisciplinary Sciences* (P: 2,970, MNCS: 1.77, PP[top20%]: 0.36). A highly number of the publications assigned to the latter were published in *PLoS ONE*, followed by *Scientific Reports* and *Nature Communications*. Other important subject category in terms of number of publications is *Cardiac & Cardiovascular Systems* (P: 2,079, MNCS: 1.57, PP[top20%]: 0.35), followed by *General & Internal Medicine* (P: 1,449, MNCS: 2.82, PP[top20%]: 0.38), and *Oncology* (P: 1,236, MNCS: 1.51, PP[top20%]: 0.33).

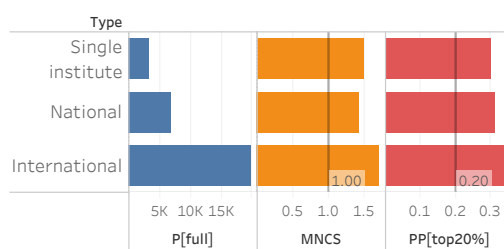
## Imperial College London

### Bibliometric performance and profiles of the biomedical & health research

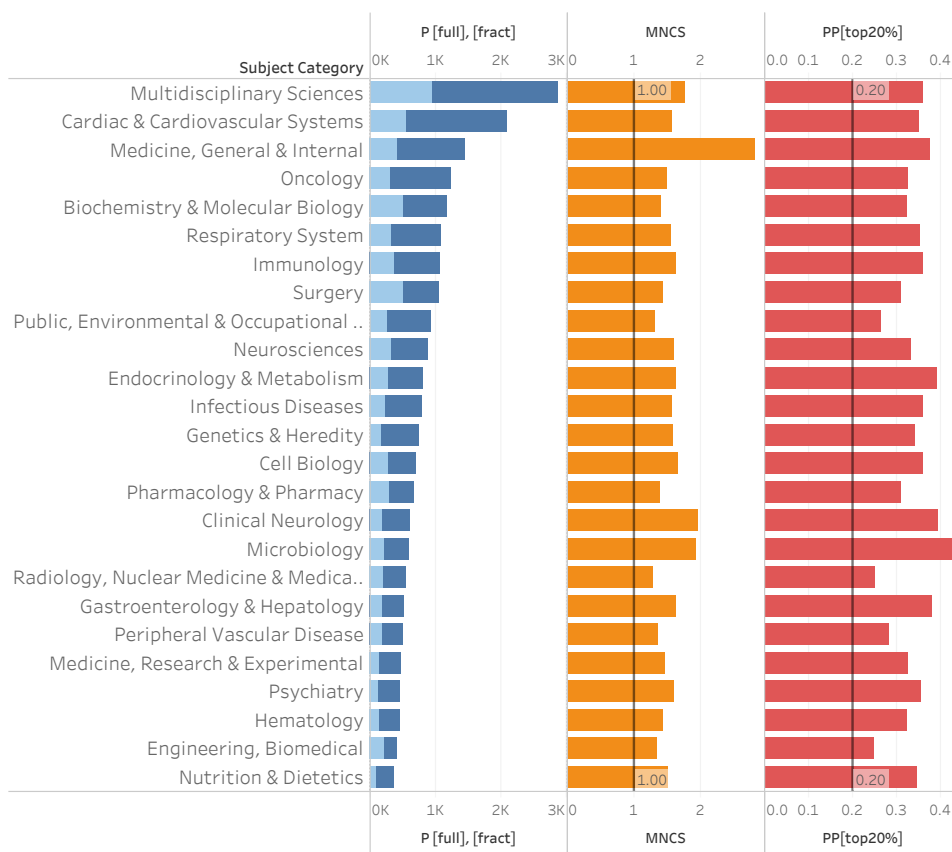
#### Performance

	Article	Review	Overall
P[full]	25,720	4,410	<b>30,130</b>
P[fract]	8,346	1,945	<b>10,291</b>
PP[collab]	0.91	0.80	<b>0.89</b>
PP[int collab]	0.68	0.55	<b>0.66</b>
TCS	398,210	90,159	<b>488,369</b>
P[top20%]	9,238	2,225	<b>11,463</b>
PP[top20%]	0.30	0.46	<b>0.33</b>
MNCS	1.41	2.22	<b>1.57</b>
MNJS	1.41	1.84	<b>1.49</b>

#### Collaboration profile



#### Research profile



### 3.2.12 Institute of Cancer Research

The Institute of Cancer Research is a public research institute and a constituent college of the University of London in London. The Institute of Cancer Research is located in Chelsea, Central London and Sutton, southwest London.

#### Performance

Researchers from the Institute of Cancer Research were involved in almost 3,698 publications covered by the Web of Science (WoS) in the period from 2011 to 2018. Part of the output (87%) was published in research articles, with the remainder in the form of reviews. Almost all publications (93%) are co-authored with other organisations. If the publications are fractionalised by the number of organisations co-authoring the papers, the output of the Institute of Cancer Research is 1,077 publications, of which 879 are classified as articles and 198 as reviews. These publications were cited close to 87,440 times. Around 39 out of 100 (PP[top20%]: 0.39) belong to the top 20% most cited publications in their own field, which is nearly 95% above the expected ratio (or world average) of 0.20. The average (citation-based) impact per paper normalised by field and year (MNCS) is 1.84, which indicates that the selected publications are cited 84% more than the expected (or world) average. Finally, the MNJS measures the impact of journals in which the Institute of Cancer Research publishes at a value of 1.76, indicating that they are publishing in high impact journals, well above world average.

#### Profiles

As can be seen, the selected output distribution shows that the main type involves international collaboration (P[full]: 2,336), followed by national collaboration with 1,105 publications, and finally the publications with no collaboration are 257. In terms of impact, the papers in international collaboration are, as many other analysis show, the ones with the highest impact (MNCS: 2.27 and PP[top20%]: 0.45).

The research profile shows the top 25 subject categories based on the selected publications for the Institute of Cancer Research. As the figure shows and as it could be expected, the most important of these is *Oncology* (P:1,432, MNCS: 1.95, PP[top20%]: 0.42), followed by *Radiology, Nuclear Medicine & Medical Imaging* (P: 346, MNCS: 1.33, PP[top20%]: 0.32). Other important subject category in terms of number of publications is *Multidisciplinary Sciences* (P: 283, MNCS: 2.41, PP[top20%]: 0.41). A highly number of the publications assigned to the latter were published in *PLoS ONE*, followed by *Nature Communications* and *Scientific Reports*. At the lower end of the profile, we discern some categories with extremely high MNCS or PP[top20%] values. It should be noted, however, that in these categories the number of publications is very low.

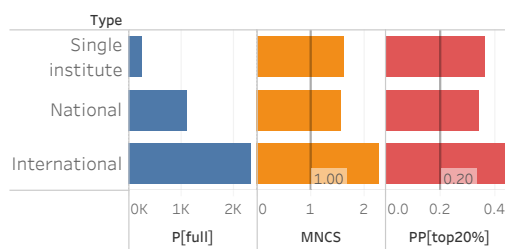
### The Institute of Cancer Research

#### Bibliometric performance and profiles of the biomedical & health research

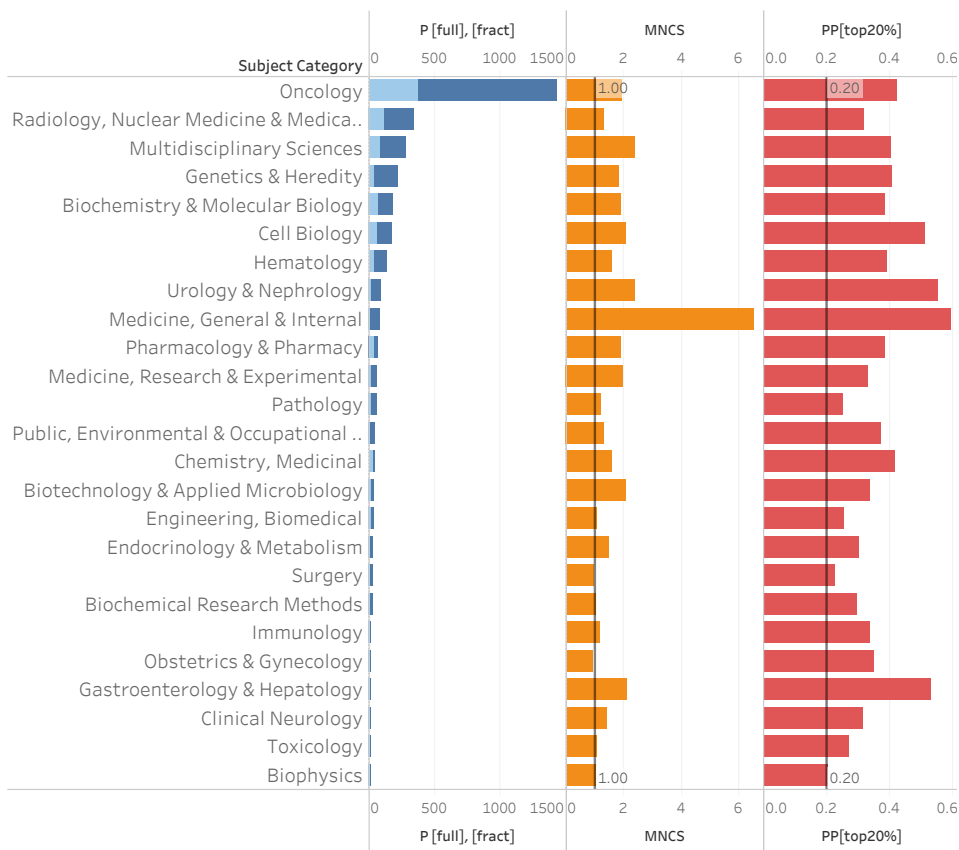
##### Performance

	Article	Review	Overall
P[full]	3,230	468	<b>3,698</b>
P[fract]	879	198	<b>1,077</b>
PP[collab]	0.94	0.84	<b>0.93</b>
PP[int collab]	0.65	0.50	<b>0.63</b>
TCS	72,692	14,803	<b>87,495</b>
P[top20%]	1,417	262	<b>1,678</b>
PP[top20%]	0.36	0.51	<b>0.39</b>
MNCS	1.65	2.70	<b>1.84</b>
MNJS	1.64	2.30	<b>1.76</b>

##### Collaboration profile



##### Research profile



### 3.2.13 Keele University

Keele University is a research university in Keele, close to Newcastle-under-Lyme, Staffordshire, England.

#### Performance

The performance table shows that a total of 2,482 publications covered by the Web of Science (WoS) (i.e. articles and reviews) were produced with the contribution of researchers from Keele University, between 2011 and 2018. In 85% of the cases these publications were in collaboration with other organisations. This is why if the selected publications are fractionalised by the number of organisations co-authoring the papers, the output of Keele University is 997 publications (P [fract]), of which 870 are classified as articles and 127 as reviews. This output has been cited 23,830 times (TCS) (excluding self-citations). The MNCS value of the selected output is 1.29 or, in other words, 29% higher than world average in the same fields and publication years. The output of Keele University appears in journals with an impact value also above world average (MNJS: 1.25). In terms of the PP[top 20%] indicator, 24% of the output from Keele University is around 20% of the most highly cited papers worldwide. This means that the analysed output from Keele University has 1.2 times more top publications than expected (or world) average from the 20% threshold in the same fields and publication years.

#### Profiles

The collaboration profile shows that the main type involves international collaboration with 1,193 publications, closely followed by national collaboration with 926 publications. The impact of publications involving international collaboration is the highest (MNCS:1.44, and PP[top20%]: 0.27), followed by national collaboration (MNCS:1.27, and PP[top20%]: 0.26).

The research profile shows the top 25 subject categories based on the selected publications for Keele University. As the figure shows, the most important of these are *General & Internal Medicine* (P: 243, MNCS: 1.80, PP[top20%]: 0.26) and *Rheumatology* (P: 218, MNCS: 1.34, PP[top20%]: 0.26), followed by *Multidisciplinary Sciences* (P: 153, MNCS: 1.27, PP[top20%]: 0.31), *Cardiac & Cardiovascular Systems* (P: 94, MNCS: 1.95, PP[top20%]: 0.46), *Orthopedics* (P: 91, MNCS: 1.29, PP[top20%]: 0.25) and *Health Care Sciences & Services* (P: 83, MNCS: 1.40, PP[top20%]: 0.28). At the lower end of the profile, we discern some categories with extremely high MNCS or PP[top20%] values. It should be noted, however, that in these categories the number of publications is low.



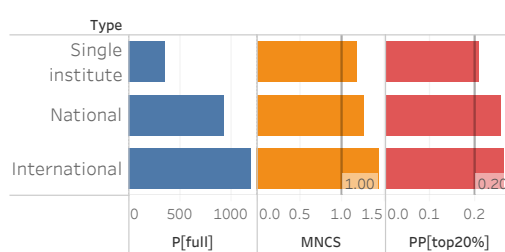
### Keele University

#### Bibliometric performance and profiles of the biomedical & health research

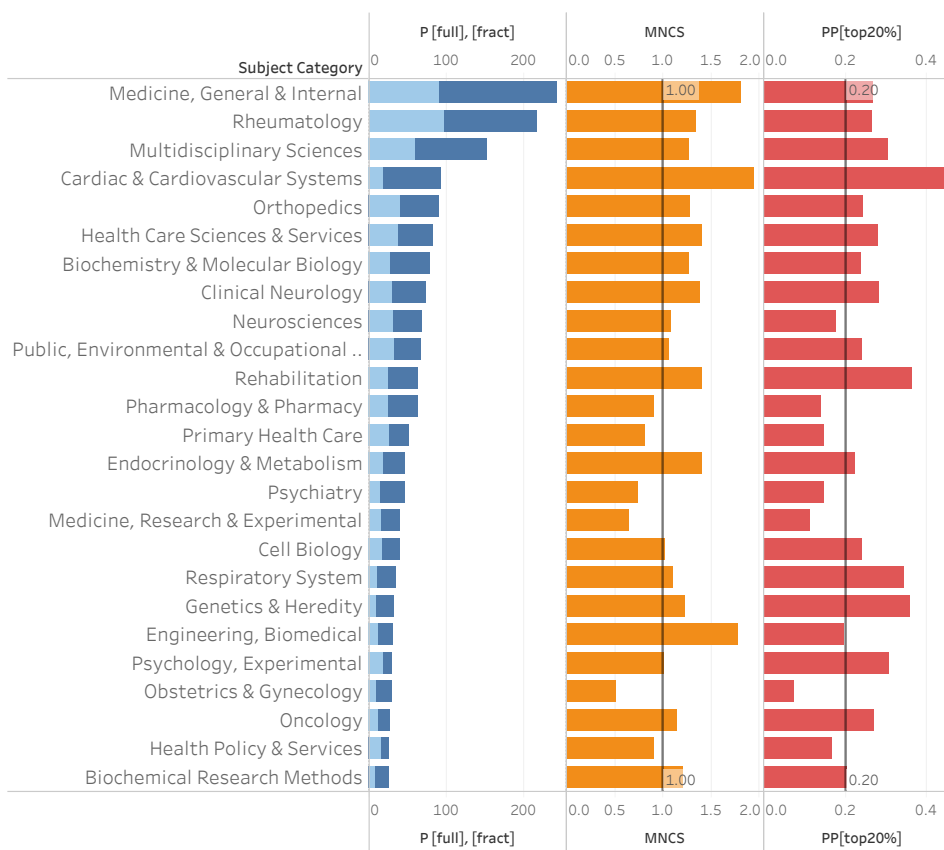
##### Performance

	Article	Review	Overall
P[full]	2,169	313	<b>2,482</b>
P[fract]	870	127	<b>997</b>
PP[collab]	0.85	0.85	<b>0.85</b>
PP[int collab]	0.48	0.47	<b>0.48</b>
TCS	17,819	6,014	<b>23,833</b>
P[top20%]	540	162	<b>701</b>
PP[top20%]	0.21	0.47	<b>0.24</b>
MNCS	1.10	2.58	<b>1.29</b>
MNJS	1.16	1.85	<b>1.25</b>

##### Collaboration profile



##### Research profile



### 3.2.14 King's College London

King's College London is research university located in London and a founding college and member institution of the federal University of London.

#### Performance

The table shows that a total of 29,968 publications covered by the Web of Science (i.e. articles and reviews) were produced with the contribution of researchers from King's College London, in 89% of the cases in collaboration with other organisations. If the selected publications are fractionalised by the number of organisations co-authoring the papers, the output of King's College London is 10,717 publications, of which 8,738 are classified as articles and 1,979 as reviews. This selected output has been cited 416,575 times (TCS) (excluding self-citations). The MNCS value for the selected publications is 1.52 or, in other words, 52% higher than world average in the same fields and publication years. The King's College London publications selected appear in journals with an impact value also much higher than world average (MNJS: 1.42). In terms of the PP[top20%] indicator, 33% of publications published by King's College London are among the upper top 20% of the most highly cited papers worldwide. This means that Kings College London has 1.65 times more top publications than expected (or world) average from the 20% threshold in the same fields and publication years.

#### Profiles

The collaboration profile summarises the collaboration activity of King's College London in the 2011-2018 period for the selected publications. More than 60% of publications were produced in international collaboration (MNCS: 1.65, PP[top20%]: 0.34), followed by national collaboration (MNCS: 1.40, PP[top20%]: 0.31 ) and non-collaborative publications (MNCS: 1.47, PP[top20%]: 0.33).

The research profile shows the top 25 subject categories based on the selected publications for King's College London. As the figure shows, the most important of these is *Psychiatry* (P: 3,591, MNCS: 1.74, PP[top20%]: 38%) followed by *Multi-disciplinary Sciences* (P: 1,936, MNCS: 1.52, PP[top20%]: 33%). The publications in the latter were published mainly in *PLoS ONE*, followed by *Scientific Reports* and *Nature Communications*. Other important subject categories in terms of number of publications are: *Neurosciences* (P: 1,650, MNCS: 1.72, PP[top20%]: 39%), *General & Internal Medicine* (P: 1,292, MNCS: 2.29, PP[top20%]: 36%), and *Clinical Neurology* (P: 1,158, MNCS: 1.77, PP[top20%]: 39%). As the figure shows, the impact of the publications in these main Subject Categories of activity is very high.

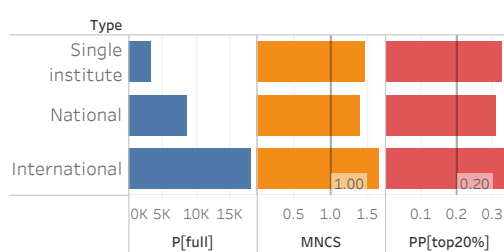
## King's College London

## Bibliometric performance and profiles of the biomedical &amp; health research

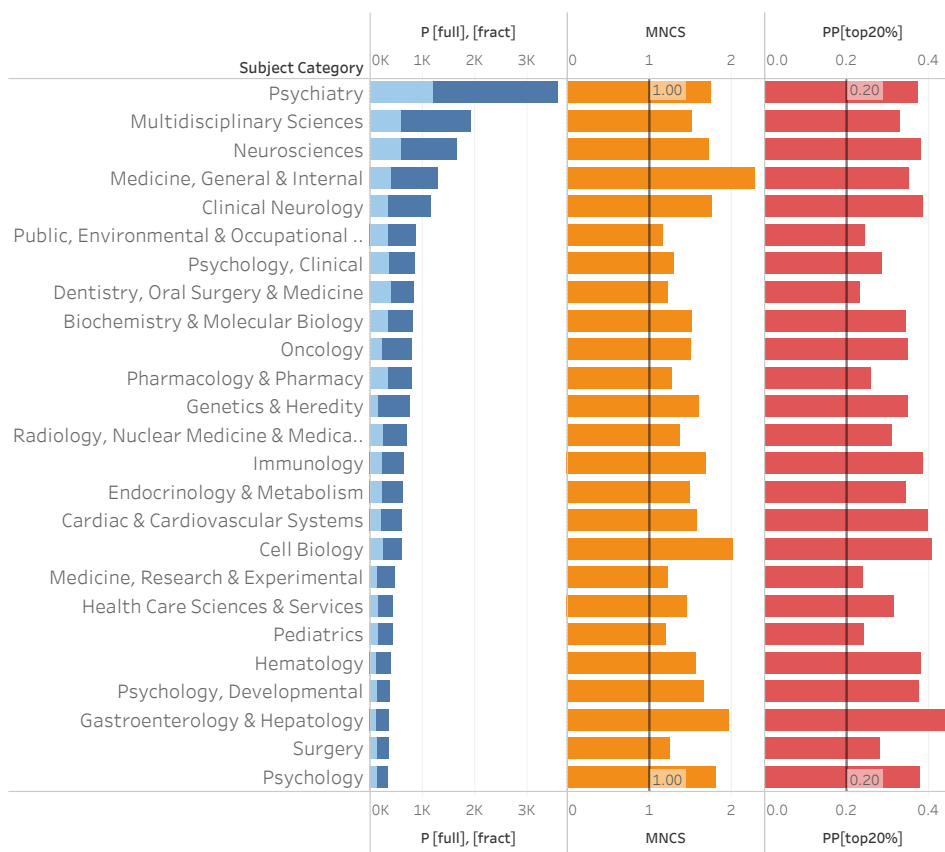
## Performance

	Article	Review	Overall
P[full]	25,501	4,467	29,968
P[fract]	8,738	1,981	10,719
PP[collab]	0.91	0.81	0.89
PP[int collab]	0.62	0.53	0.60
TCS	330,527	85,980	416,507
P[top20%]	8,469	2,369	10,838
PP[top20%]	0.29	0.50	0.33
MNCS	1.32	2.39	1.52
MNJS	1.32	1.85	1.42

## Collaboration profile



## Research profile



### 3.2.15 King's College Hospital NHS Foundation Trust

King's College Hospital NHS Foundation Trust is an NHS trust in London.

#### Performance

Researchers at King's College Hospital NHS Foundation Trust were involved in more than 4,704 publications covered by the Web of Science (WoS) in the period from 2011 to 2018. Around 83% of the selected output was published in research articles, with the remainder in the form of reviews. Around 86% of the publications are co-authored with other organisations. When the selected output is fractionalised by the number of organisations involved 1,769 publications were from King's College Hospital NHS Foundation Trust. These publications were cited 66,632 times and 27 out of 100 (PP[top20%]: 0.27) belong to the top 20% most cited publications in their own field, which is around 20% above the expected ratio (or world average) of 0.20. The average (citation-based) impact per paper normalised by field and year (MNCS) is 1.32, which indicates that they are cited 32% more than the expected (or world) average. Finally, the MNJS measures the impact of journals in which King's College Hospital NHS Foundation Trust publishes, the value of 1.24, indicating that it is quite successful in publishing in high-impact journals.

#### Profiles

The highest share of the output involves international collaboration, which also attracts the highest number of citations, both by MNCS and PP[top20%]. From both perspectives, the normalised impact is very high ((MNCS: 1.79) and PP[top20%]: 0.34). The impact of the papers in national collaboration, even though is also above world average, is lower than the papers in international collaboration. Finally, the impact of the publications with no collaboration is just world average.

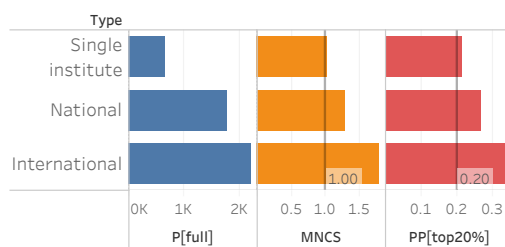
The research profile shows the top 25 subject categories based on the selected publications for King's College Hospital NHS Foundation Trust. As the figure shows, the most important of these is *Gastroenterology & Hepatology* (P: 314, MNCS: 1.52, PP[top20%]: 0.36), followed by *Clinical Neurology* (P: 294, MNCS: 1.55, PP[top20%]: 0.33), *Surgery* (P: 274, MNCS: 0.96, PP[top20%]: 0.19), *Obstetrics & Gynecology* (P: 268, MNCS: 1.84, PP[top20%]: 0.31), *General & Internal Medicine* (P: 239, MNCS: 2.41, PP[top20%]: 0.28), *Cardiac & Cardiovascular Systems* (P: 214, MNCS: 1.31, PP[top20%]: 0.31), and *Hematology* (P: 206, MNCS: 1.35, PP[top20%]: 0.37). At the lower end of the profile, we discern some categories with high MNCS or PP[top20%] values. It should be noted, however, that in these categories the number of publications is low.

**King's College Hospital NHS Foundation Trust**  
Bibliometric performance and profiles of the biomedical & health research

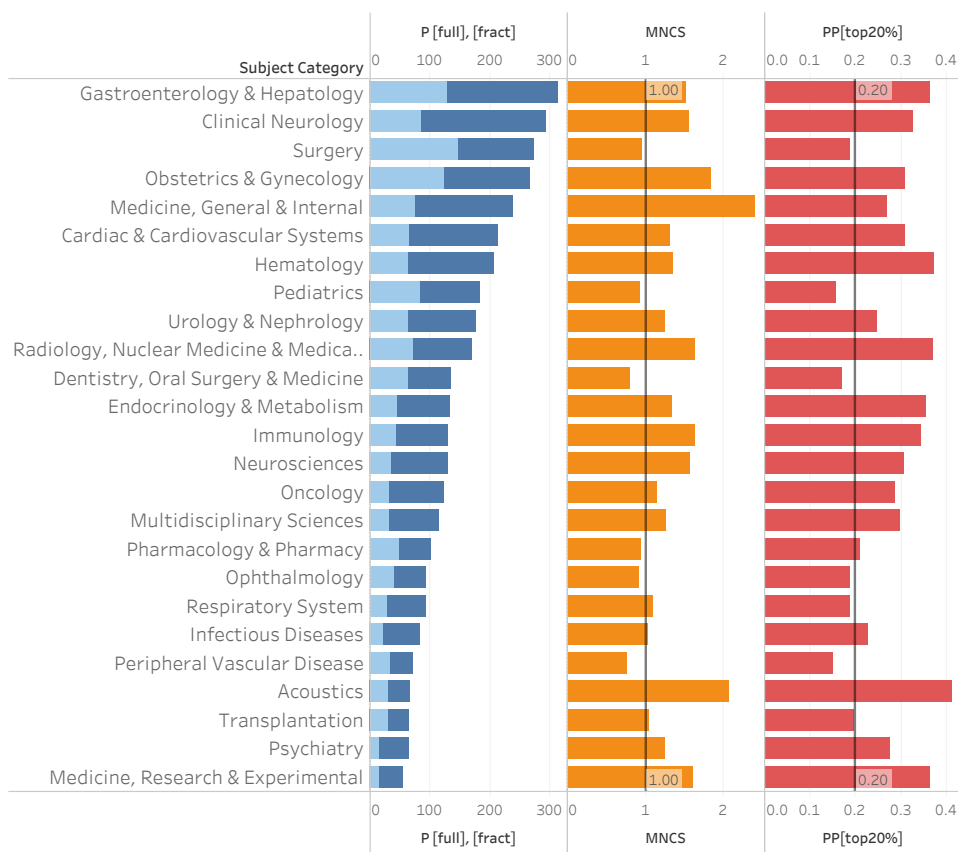
## Performance

	Article	Review	Overall
P[full]	3,897	807	<b>4,704</b>
P[fract]	1,412	357	<b>1,769</b>
PP[collab]	0.87	0.81	<b>0.86</b>
PP[int collab]	0.47	0.47	<b>0.47</b>
TCS	54,441	12,191	<b>66,632</b>
P[top20%]	1,274	344	<b>1,618</b>
PP[top20%]	0.24	0.39	<b>0.27</b>
MNCS	1.20	1.80	<b>1.32</b>
MNJS	1.18	1.47	<b>1.24</b>

## Collaboration profile



## Research profile



### 3.2.16 Lancaster University

Lancaster University is a research university in the city of the same name, Lancaster, in Lancashire.

#### Performance

Researchers at Lancaster University were involved in more than 2,643 in publications in the period from 2011 to 2018. A majority of the selected output (almost 90%) was published in research articles, with the remainder in the form of reviews. Around 87% of the publications are co-authored with other organisations, when the selected output is fractionalised by the number of organisations involved 1,058 publications were from Lancaster University. These publications were cited 29,095 times and 24 out of 100 (PP[top20%]: 0.24) belong to the top 20% most cited publications in their own field, which is around 20% above the expected ratio (or world average) of 0.20. The average (citation-based) impact per paper normalised by field and year (MNCS) is 1.18, which indicates that they are cited 18% more than the expected (or world) average. Finally, the MNJS measures the impact of journals in which Lancaster University publishes at a rate of 1.19, indicating that it is quite successful in publishing in high-impact journals.

#### Profiles

The highest share of the output involves international collaboration, which also attracts the highest number of citations, both by MNCS and PP[top20%]. From both perspectives, the normalised impact is around 40% higher than world average. The impact of the papers in national collaboration even though is also above world average is lower than the papers in international collaboration. Finally, the impact of the publications with no collaboration is lower than world average for MNCS and just world average for PP[top20%].

The research profile shows the top 25 Subject Categories based on the selected publications for Lancaster University. As the figure shows, the most important of these is *Multidisciplinary Sciences* (P: 258, MNCS: 1.85, PP[top20%]: 0.25), followed by *Public, Environmental & Occupational Sciences* (P: 159, MNCS: 1.16, PP[top20%]: 0.23), *General & Internal Medicine* (P: 140, MNCS: 2.04, PP[top20%]: 0.39), *Experimental Psychology* (P: 128, MNCS: 1.00, PP[top20%]: 0.18), *Psychiatry* (P: 91, MNCS: 0.94, PP[top20%]: 0.22), *Health Care Sciences & Services* (P: 89, MNCS: 1.35, PP[top20%]: 0.29), and *Neurosciences* (P: 83, MNCS: 1.20, PP[top20%]: 0.28). A highly number of the publications assigned to the *Multidisciplinary Sciences* were published in *PLoS ONE*, followed by *Scientific Reports*.

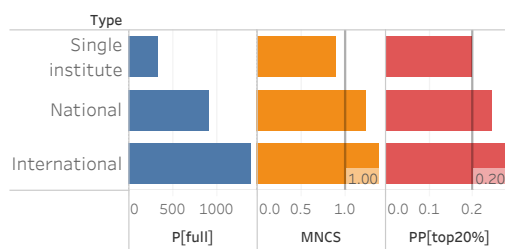
## Lancaster University

### Bibliometric performance and profiles of the biomedical & health research

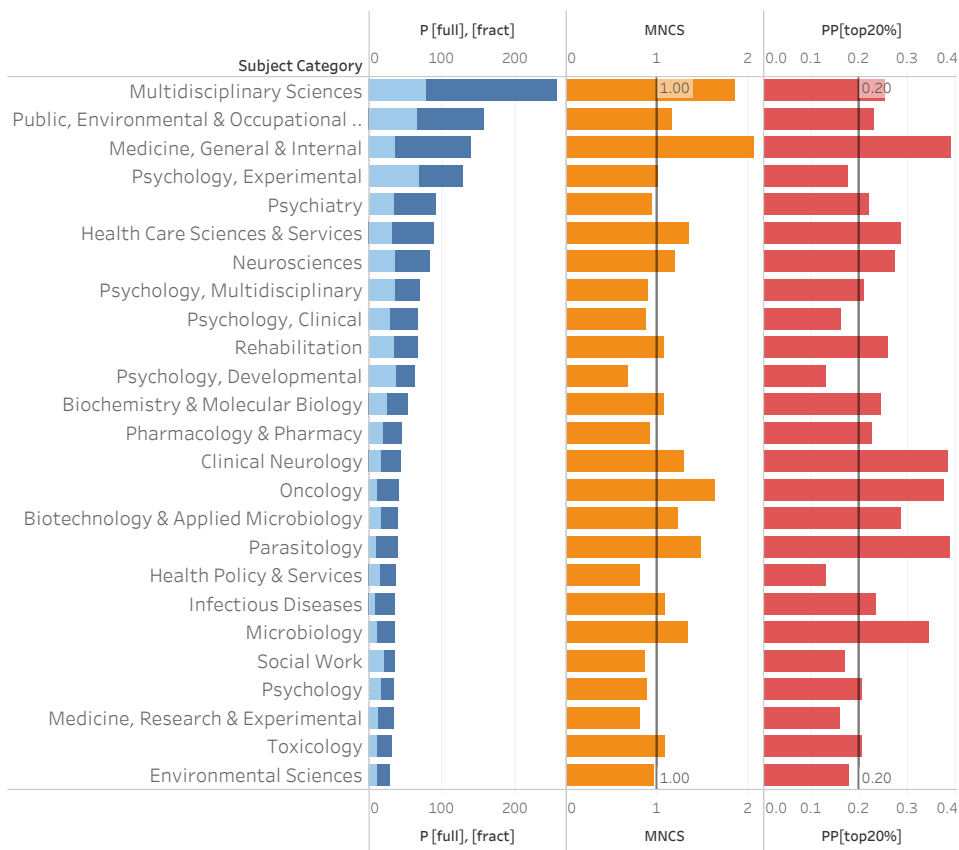
#### Performance

	Article	Review	Overall
P[full]	2,346	297	<b>2,643</b>
P[fract]	946	112	<b>1,058</b>
PP[collab]	0.87	0.89	<b>0.87</b>
PP[int collab]	0.53	0.49	<b>0.52</b>
TCS	21,905	7,252	<b>29,157</b>
P[top20%]	615	155	<b>770</b>
PP[top20%]	0.22	0.46	<b>0.24</b>
MNCS	1.09	2.03	<b>1.19</b>
MNJS	1.13	1.64	<b>1.19</b>

#### Collaboration profile



#### Research profile



### 3.2.17 Leeds Teaching Hospitals NHS Trust

Leeds Teaching Hospitals NHS Trust is an NHS hospital trust in Leeds, West Yorkshire, England.

#### Performance

Researchers at the Leeds Teaching Hospitals NHS Trust were involved in almost 6,055 publications covered in the Web of Science (WoS) in the period from 2011 to 2018. Part of the output (84%) was published in research articles, with the remainder in the form of reviews. Almost all publications (87%) are co-authored with other organisations. If the publications are fractionalised by the number of organisations co-authoring the papers, the output of Leeds Teaching Hospitals NHS Trust is 2,095 publications, of which 1,705 are classified as articles and 390 as reviews. These publications were cited close to 86,951 times. Around 24 out of 100 (PP[top20%]: 0.24) belong to the top 20% most cited publications in their own field, which is nearly 20% above the expected ratio (or world average) of 0.20. The average (citation-based) impact per paper normalised by field and year (MNCS) is 1.21, which indicates that the selected publications are cited 21% more than the expected (or world) average. Finally, the MNJS measures the impact of journals in which Leeds Teaching Hospitals NHS Trust publishes at a value of 1.22, indicating that it is publishing in also above world average impact journals.

#### Profiles

As can be seen, the selected output distribution shows that the main type involves international collaboration (P[full]: 2,826), followed closely by national collaboration with 2,464 publications, and finally the publications with no collaboration are 765. In terms of impact, the papers in international collaboration are, as many other analysis show, the ones with the highest impact (MNCS:1.71 and PP[top20%]: 0.35).

The research profile shows the top 25 subject categories based on the number of publications for Leeds Teaching Hospitals NHS Trust. As the figure shows, the most important of these are *Oncology* (P: 691, MNCS: 1.62, PP[top20%]: 0.33) and *Rheumatology* (P: 515, MNCS: 1.60, PP[top20%]: 0.39), followed by *Surgery* (P: 427, MNCS: 0.95, PP[top20%]: 0.19), *General & Internal Medicine* (P: 344, MNCS: 1.90, PP[top20%]: 0.24), *Gastroenterology & Hepatology* (P: 287, MNCS: 1.76, PP[top20%]: 0.35), *Radiology, Nuclear Medicine & Medical Imaging* (P: 263, MNCS: 0.92, PP[top20%]: 0.18).



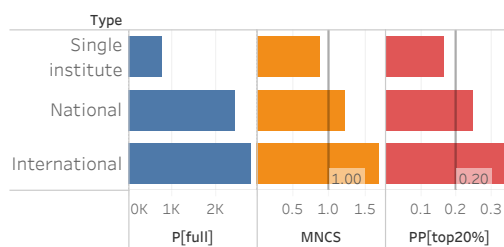
### Leeds Teaching Hospitals NHS Trust

Bibliometric performance and profiles of the biomedical & health research

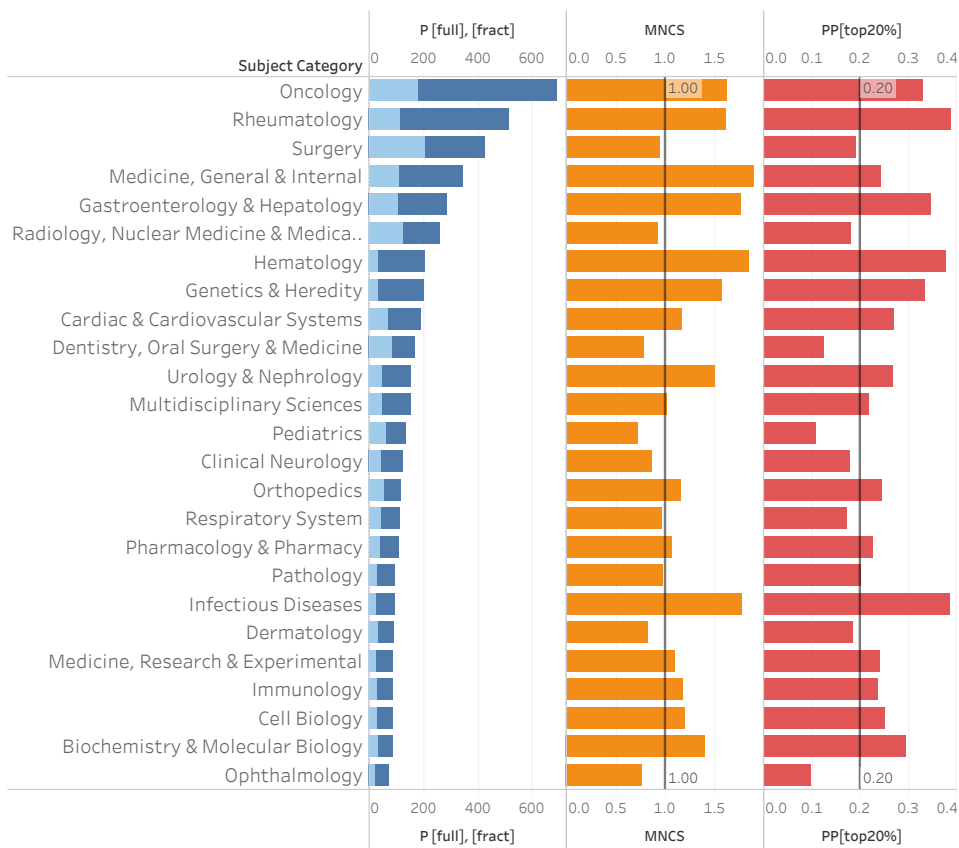
#### Performance

	Article	Review	Overall
P[full]	5,088	967	<b>6,055</b>
P[fract]	1,705	390	<b>2,095</b>
PP[collab]	0.88	0.85	<b>0.87</b>
PP[int collab]	0.47	0.46	<b>0.47</b>
TCS	69,949	16,921	<b>86,870</b>
P[top20%]	1,663	433	<b>2,097</b>
PP[top20%]	0.21	0.39	<b>0.24</b>
MNCS	1.08	1.79	<b>1.21</b>
MNJS	1.16	1.46	<b>1.22</b>

#### Collaboration profile



#### Research profile



### 3.2.18 Liverpool John Moores University

Liverpool John Moores University (LJMU) is a public research university in the city of Liverpool, England. It is named after Sir John Moores, a local businessman and philanthropist, who donated to the university's precursor institutions. The university had 24,030 students in 2018/19.

#### Performance

The medical and health research staff at LJMU were involved in nearly 2,500 publications in peer reviewed journals (covered by the Web of Science) in the period 2011 to 2018. The vast majority (90%) were published in research articles, the reminder in the form of reviews. The Medical and Health research in this university is almost always done in collaboration with other organisations (91%). Almost 2 out of 3 publications involve International collaboration. The impact as measured by MNCS and PP[top20] is around 20% above the world average, while the impact of journals in which LJMU published have an impact (MNJS) at 20% above the world average.

#### Profiles

Looking at the collaboration profile, we see the a particularly high impact for output involving international collaboration.

The Research profile shows that by far most papers were published in *Sport Sciences* (P: 374, MNCS: 1.50, PP[top20%]: 0.31), followed by multidisciplinary journals (PloS ONE, Scientific reports and PNAS) and *Physiology*. Normalised by the number of co-authoring organisations, journals in the following categories were equally used: *Pharmacology & Pharmacy*, *Neurosciences*, and *Public, Environmental and Occupational Health*. In all these categories the impact of research has been above the world average. In *Experimental Psychology*, *Cardiac & Cardiovascular Systems*, *Toxicology* as well as in *Endocrinology & Metabolism*, the impact stands out at around twice the world average.

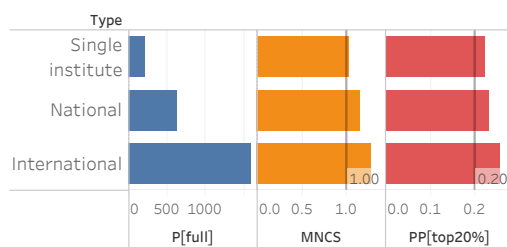
### Liverpool John Moores University

#### Bibliometric performance and profiles of the biomedical & health research

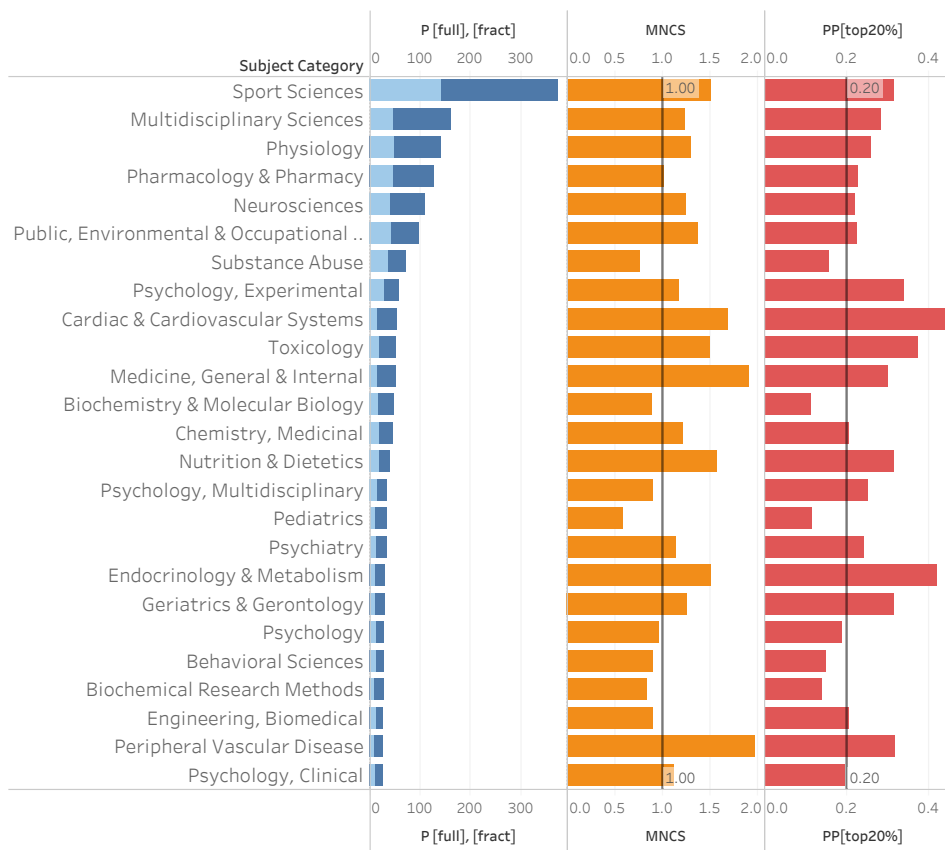
##### Performance

	Article	Review	Overall
P[full]	2,206	246	<b>2,452</b>
P[fract]	828	91	<b>919</b>
PP[collab]	0.91	0.90	<b>0.91</b>
PP[int collab]	0.65	0.70	<b>0.65</b>
TCS	16,401	4,190	<b>20,591</b>
P[top20%]	500	146	<b>646</b>
PP[top20%]	0.20	0.59	<b>0.24</b>
MNCS	1.03	2.53	<b>1.18</b>
MNJS	1.01	1.90	<b>1.09</b>

##### Collaboration profile



##### Research profile



### 3.2.19 London School of Economics and Political Science

The London School of Economics and Political Science (LSE) is a public research university located in London and a member institution of the federal University of London. In 2018/19, LSE hosted more than 11,000 students and 3,300 staff. LSE has a much broader profile than biomedical & health research, on which this study focuses.

#### Performance

The medical and health research staff at the LSE were involved in more than 1,500 publications from 2011 to 2018. Over 90% of them are research articles in peer reviewed journals. The remaining output is published in reviews. These publications received more than 22,000 citations up to 2019. 30% of the output (P[top20]: 533) belongs to the top 20 most cited publications. For reviews this is even 49%. The impact as measured by MNCS is 1.51, which means that on average the impact is 51% above the world average. Also the journals in which LSE publishes have an average impact well above the world average (MNJS: 1.37).

#### Profiles

We found that 83% of the output is co-authored with other organisations, while 59% involves International collaboration. Although all output types are well cited, the impact is particularly high for co-authored publications, both nationally and internationally.

The research profile clearly shows a focus by LSE on health care (*Public, Occupational & Environmental Health, Health Policy & Services and Health Care Sciences & Services*). Other prominent subject categories are *General & Internal Medicine, Multidisciplinary Sciences* (mainly in *PloS ONE*) and *Psychiatry*. Looking at the output normalised by the number of organisations involved (P[fract]), we can derive that research in *General & Internal Medicine* is particularly done in larger consortia. Research on this subject has a very high impact.

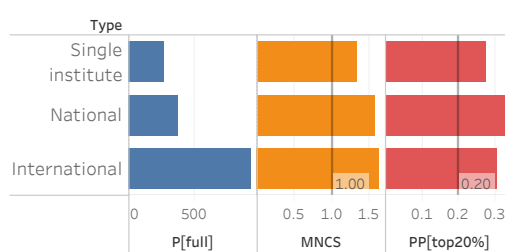
## London School of Economics and Political Science

### Bibliometric performance and profiles of the biomedical & health research

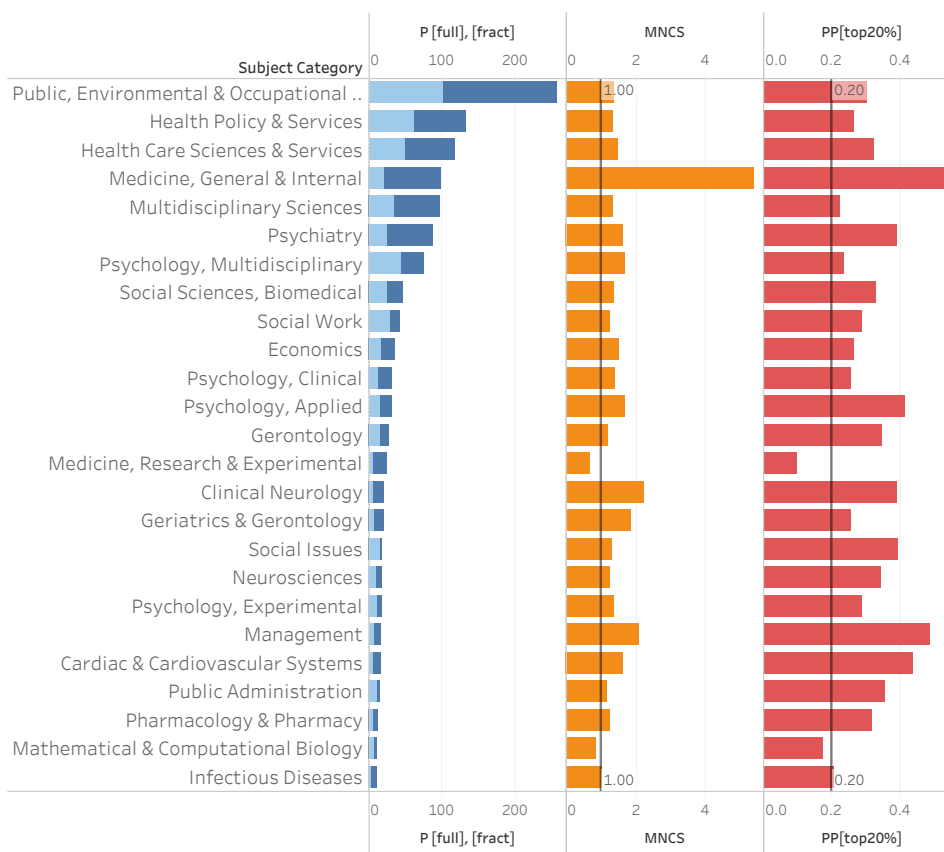
#### Performance

	Article	Review	Overall
P[full]	1,449	133	<b>1,582</b>
P[fract]	612	55	<b>667</b>
PP[collab]	0.83	0.85	<b>0.83</b>
PP[int collab]	0.59	0.55	<b>0.59</b>
TCS	20,840	1,807	<b>22,647</b>
P[top20%]	463	70	<b>533</b>
PP[top20%]	0.28	0.49	<b>0.30</b>
MNCS	1.37	2.99	<b>1.51</b>
MNJS	1.33	1.77	<b>1.37</b>

#### Collaboration profile



#### Research profile



### 3.2.20 The London School of Hygiene & Tropical Medicine

The London School of Hygiene & Tropical Medicine (LSHTM) is a public research university in Bloomsbury, Camden, and a constituent college of the University of London specialised in public health and tropical medicine. The university has over 1,200 students and employs more than 800 academic staff.

#### Performance

LSHTM was involved in more than 14,000 publications in 2011–2018. 1,666 of these were reviews. Almost all of them (94%) were co-authored with other organisations, while 78% involved international collaboration, as one can expect from the research focus of this organisation. The impact of this organisations is high (more than 200,000 citations, MNCS: 1.71 and PP[top20]: 0.36). Also, LSHTM published in high impact journals. The impact of these journals is 58% above the world average.

#### Profiles

The vast majority of LSHTM biomedical research output (P: 11,120) involves international collaboration, with an impact well above the world average (PP[top20]: 0.34, MNCS: 1.69). And although much less is published with only UK partners or by LSHTM only, the impact is at the same level.

The research profile lists the obvious subject categories starting with: *Public, Occupational & Environmental Health*, *Infectious Diseases* and *General & Internal Medicine*, together with *Multidisciplinary Science*, primarily *PloS ONE*. Other obvious categories are *Tropical Medicine* and *Parasitology*. In all these subject categories, the impact is high while in *General & Internal Medicine* the impact is very high (MNCS: almost 4 and PP[top20]: 0.56). It is notable that in all subject categories listed in the profile, the impact is high or very high.

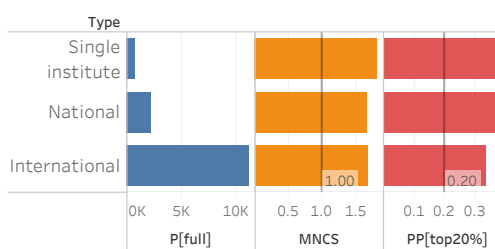
### London School of Hygiene & Tropical Medicine

#### Bibliometric performance and profiles of the biomedical & health research

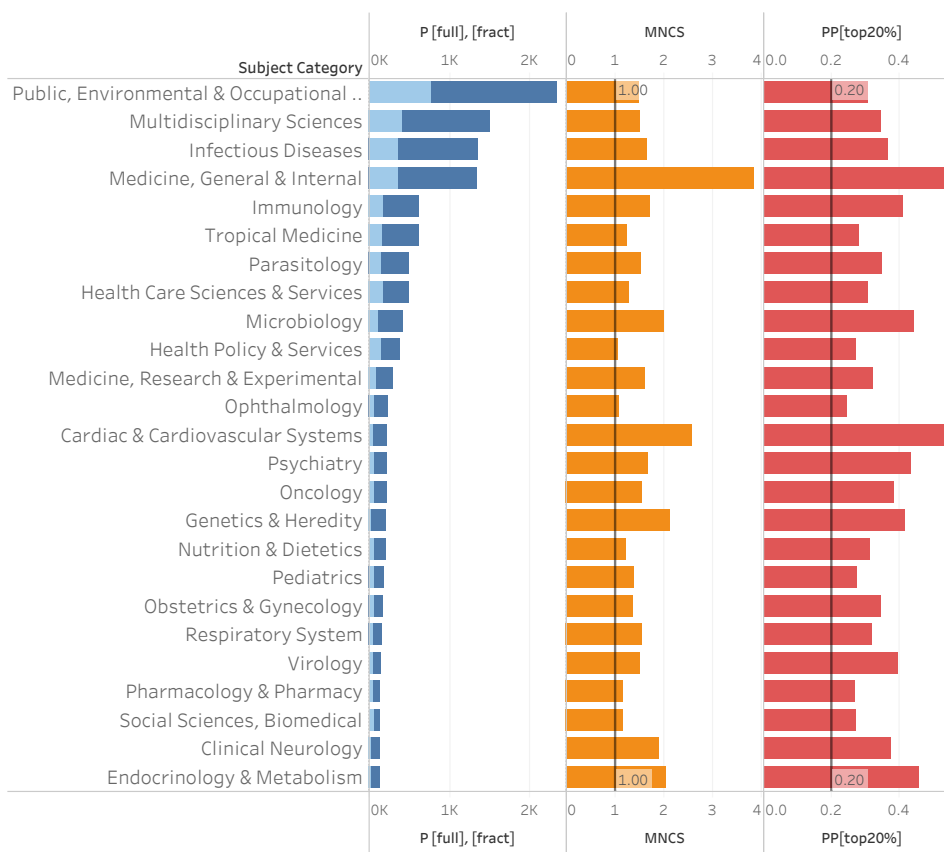
#### Performance

	Article	Review	Overall
P[full]	12,570	1,665	<b>14,235</b>
P[fract]	3,568	580	<b>4,148</b>
PP[collab]	0.95	0.90	<b>0.94</b>
PP[int collab]	0.79	0.72	<b>0.78</b>
TCS	176,926	33,696	<b>210,622</b>
P[top20%]	4,376	1,021	<b>5,397</b>
PP[top20%]	0.32	0.59	<b>0.36</b>
MNCS	1.52	2.86	<b>1.71</b>
MNJS	1.48	2.18	<b>1.58</b>

#### Collaboration profile



#### Research profile



### 3.2.21 Loughborough University

Loughborough University (Lboro) is a public research university in the market town of Loughborough, Leicestershire, in the East Midlands of England. LBoro hosted 18,439 students in 2018/19. With a broad profile, LBoro research intends to help business and industry to compete more effectively, shape public policy and ultimately improve the quality of people's lives.

#### Performance

LBoro was involved as co-authoring organisation in more than 3,200 biomedical and health publications in the period from 2011 to 2018. These publications were cited more than 24,200 times up to 2019. 920 of their publications were among the top 20 most cited publications. The estimated proportion of top 20 publications (PP[top20%]) is 0.27, which is well above the expected (i.e. world average) of 0.2. The impact measured by MNCS is 21% above the world average (1.21). Finally, the citation-based impact of the journals in which LBoro publishes is 15% above the world average.

#### Profiles

Almost 80% of the research output at LBoro is published in collaboration with other organisations (PP [collab]: 0.78), while 43% involves International collaboration. Slightly more than 700 publications (22%) of the output involved LBoro only. The impact of each type of publication is well above the world average, but increases from single institute to international collaboration.

LBoro biomedical and health research mainly focuses on *Sport Sciences* and *Veterinary Sciences*, and to a lesser extent on *Public, Occupational & Environmental Health*, *Endocrinology & Metabolism*, and *General & Internal Medicine*. Furthermore, many publications are published in Multidisciplinary Science journals, e.g. *PloS ONE* and *Scientific Reports*. The impact is particularly high for the output in the subject category *Endocrinology & Metabolism, Hospitality, Leisure, Sport & Tourism* and *Multidisciplinary Psychology*. Further down the list we also discern some categories with high impact (e.g., MNCS or PP[top20%] *Food Science & Technology* but with fewer publications.



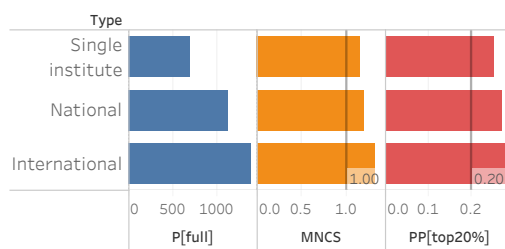
## Loughborough University

### Bibliometric performance and profiles of the biomedical & health research

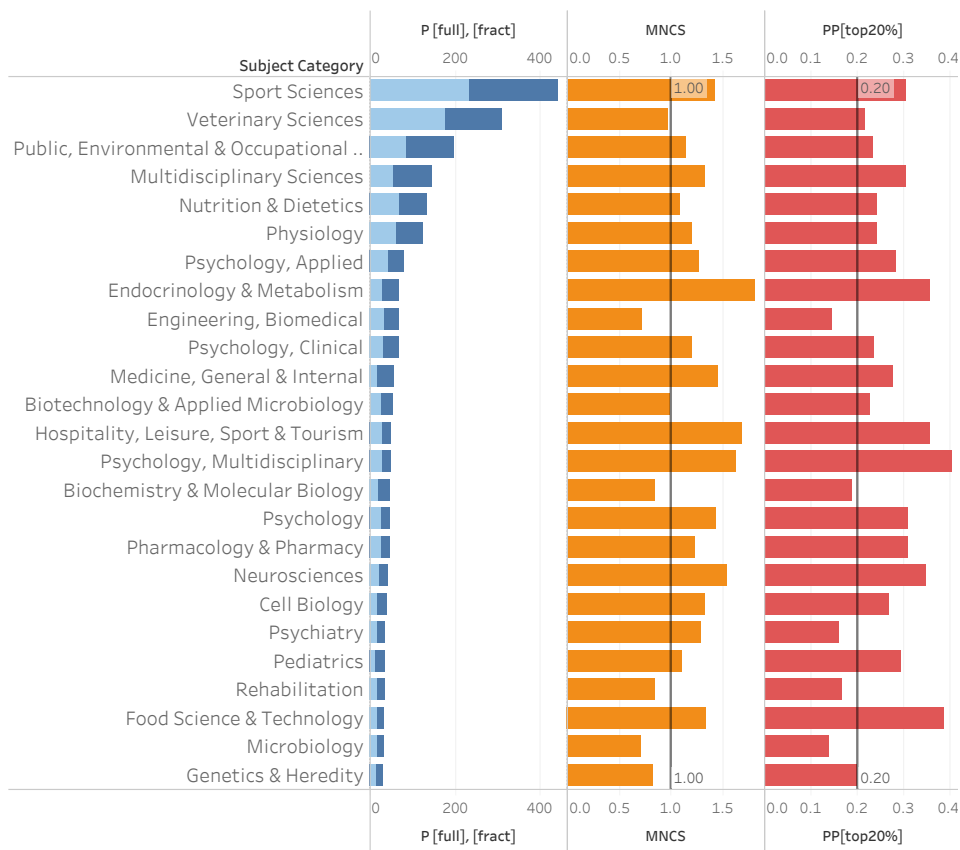
#### Performance

	Article	Review	Overall
P[full]	2,944	298	<b>3,242</b>
P[fract]	1,441	145	<b>1,586</b>
PP[collab]	0.78	0.78	<b>0.78</b>
PP[int collab]	0.43	0.46	<b>0.43</b>
TCS	19,102	5,153	<b>24,255</b>
P[top20%]	751	169	<b>920</b>
PP[top20%]	0.24	0.53	<b>0.27</b>
MNCS	1.09	2.52	<b>1.22</b>
MNJS	1.09	1.80	<b>1.15</b>

#### Collaboration profile



#### Research profile



### 3.2.22 Manchester University NHS Foundation Trust

Manchester University NHS Foundation Trust (MFT) is an NHS Acute Foundation Trust which operates 9 hospitals throughout Greater Manchester. It was formed by the merger of Central Manchester University Hospitals NHS Foundation Trust with the University Hospital of South Manchester NHS Foundation Trust on 1 October 2017. It is the largest NHS trust in the United Kingdom, with 21,945 staff in 2018/19.

#### Performance

The MFT produced 6,805 publications in the period 2011–2018, with a relatively large share of nearly 14% in the form of reviews. Overall, the MFT output received almost 84,000 citations up to 2019. 91% of the output is co-authored with other organisations, while in 47% foreign co-authors are involved. Normalised by field and year of publication, MFT has an impact at 26% above the world average (MNCS: 1.26). In particular, reviews are well cited (MNCS: 1.74). The proportion of output in the top 20% is 0.27, where 0.20 is the world average or expected value. Finally, the journals in which MFT publishes have an impact that is 21% above the world average (MNJS: 1.21).

#### Profiles

The 91% of output in collaboration with other organisations was evenly distributed across national on one side and international partners on the other. The impact of the output involving foreign co-authors was somewhat higher (PP [top 20]: 0.34 vs. 0.28 and MNCS: 1.66 vs. 1.25). The impact of output (co-)authored exclusively within MFT was cited less frequently and just below the world average.

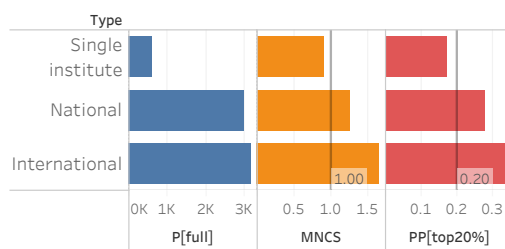
MFT has a broad research profile, with *Genetics & Heredity*, *General & Internal Medicine*, *Oncology*, *Surgery*, *Endocrinology & Metabolism*, *Rheumatology*, *Cardiac & Cardiovascular Systems*, *Respiratory System* and *Ophthalmology* as most prominent subject categories. In these categories the impact is at the world average or well above. Particularly in *Endocrinology & Metabolism* and *Rheumatology*, the impact is high. In addition we discern many other subject categories with substantial output and (most of the time) high impact.

**Manchester University NHS Foundation Trust**  
Bibliometric performance and profiles of the biomedical & health research

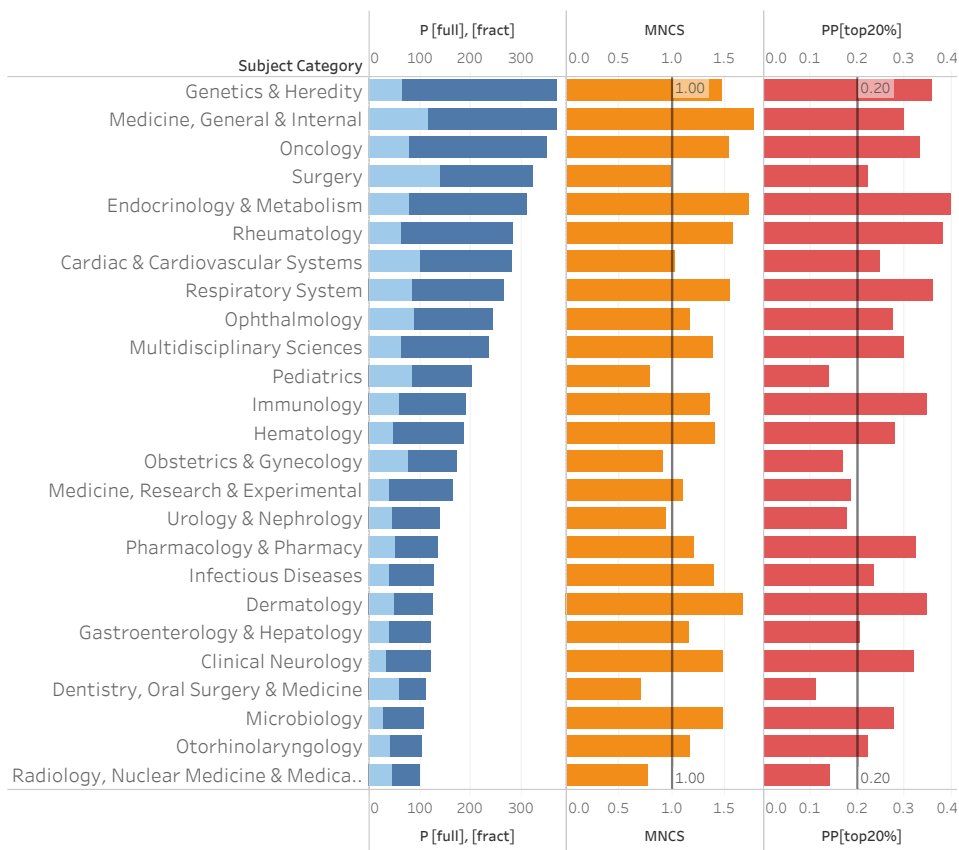
## Performance

	Article	Review	Overall
P[full]	5,862	943	<b>6,805</b>
P[fract]	1,825	366	<b>2,191</b>
PP[collab]	0.91	0.88	<b>0.91</b>
PP[int collab]	0.48	0.37	<b>0.47</b>
TCS	71,420	12,603	<b>84,023</b>
P[top20%]	1,984	422	<b>2,407</b>
PP[top20%]	0.24	0.39	<b>0.27</b>
MNCS	1.16	1.74	<b>1.26</b>
MNJS	1.17	1.46	<b>1.21</b>

## Collaboration profile



## Research profile



### 3.2.23 Moorfields Eye Hospital NHS Foundation Trust

Moorfields Eye Hospital is a specialist NHS eye hospital in St Luke's in London, England run by Moorfields Eye Hospital NHS Foundation Trust. Together with the UCL Institute of Ophthalmology, which is adjacent to the hospital, it is the oldest and largest centre for ophthalmic treatment, teaching and research in Europe.

#### Performance

Researchers at the Moorfields Eye Hospital NHS Foundation Trust were involved in more than 2,300 publications covered by the Web of Science (WoS) in the period from 2011 to 2018. The vast majority of the output (88%) was published in research articles, with the remainder in the form of reviews. Almost all publications (95%) are co-authored with other organisations, while almost 60% of the total output involves international collaboration. These publications were cited close to 25,000 times. Almost 3 out of 10 (PP [top20%]:0.28) belong to the top 20% most cited publications in their own fields, which is nearly 50% above the expected ratio (or world average) of 0.20. The average (citation-based) impact per paper normalised by field and year (MNCS) is 1.28, which indicates that they are cited 28% more than the expected (or world) average. Finally, the MNJS measures the impact of journals in which Moorfields Eye Hospital NHS Foundation Trust publishes at a rate of 1.24, indicating that it is successful in publishing in high-impact journals.

#### Profiles

The highest share of the output involves international collaboration, which also attracts the highest number of citations, both by MNCS and PP [top20%]. From both perspectives, the normalised impact is around 50% higher than expected. The impact of the other collaboration types is around world average.

Almost all output by this organisation is in *Ophthalmology* journals. The impact of publications in these journals is slightly above world average (both MNCS and PP [top20%]). The impact of publications in the top 4 categories is particularly high in *Genetics & Heredity*. It should be noted that in this category the number of co-authoring organisations is higher than in the other three, as we can read from the lower P [fract]. At the lower end of the profile, we discern some categories with extremely high MNCS or PP [top 20%] values. It should be noted, however, that in these categories the number of publications is very low.

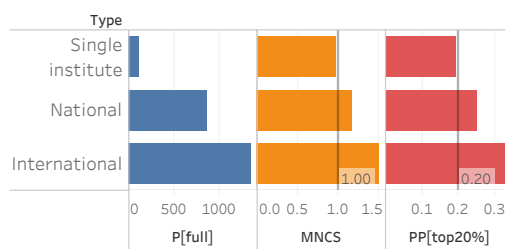
### Moorfields Eye Hospital NHS Foundation Trust

#### Bibliometric performance and profiles of the biomedical & health research

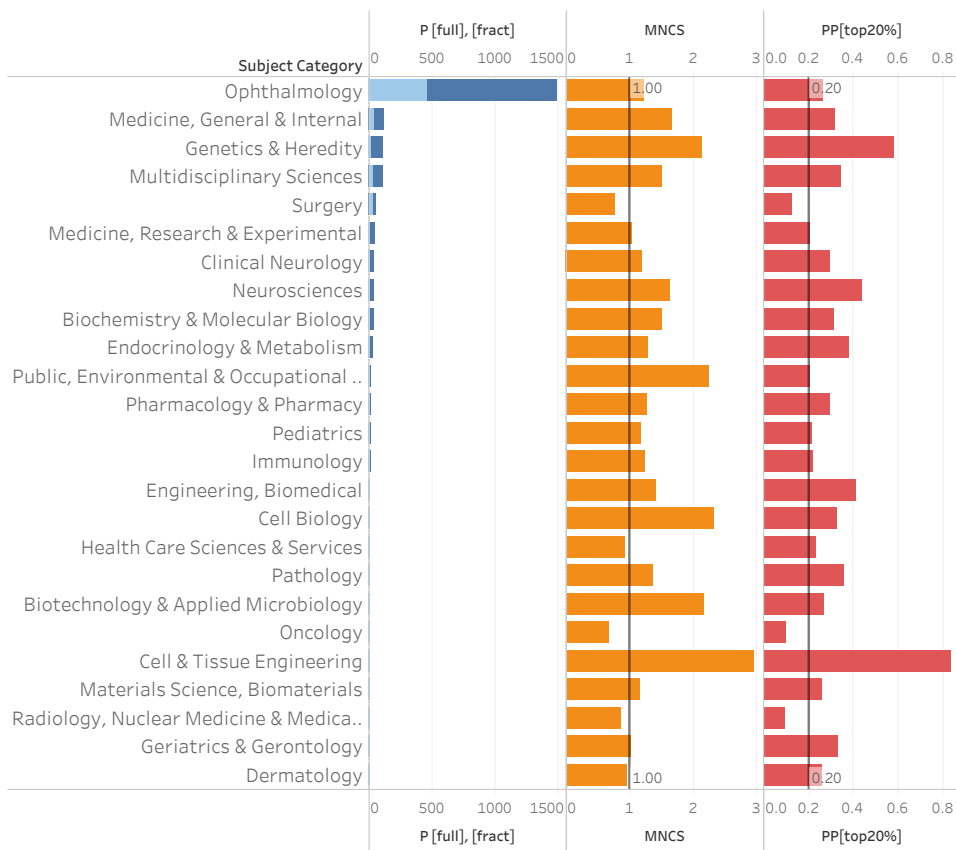
##### Performance

	Article	Review	Overall
P[full]	2,032	283	<b>2,315</b>
P[fract]	584	97	<b>681</b>
PP[collab]	0.96	0.91	<b>0.95</b>
PP[int collab]	0.59	0.50	<b>0.58</b>
TCS	21,592	3,389	<b>24,981</b>
P[top20%]	621	141	<b>762</b>
PP[top20%]	0.25	0.45	<b>0.28</b>
MNCS	1.20	1.76	<b>1.28</b>
MNJS	1.20	1.47	<b>1.24</b>

##### Collaboration profile



##### Research profile



### 3.2.24 North Bristol NHS Trust

North Bristol NHS Trust is a National Health Service trust providing community healthcare and hospital services to Bristol, South Gloucestershire and North Somerset, England. The trust has over 8,000 staff delivering healthcare across Southmead Hospital, Cossham Hospital and the Bristol Centre for Enablement, and the local communities. Medical teaching facilities are provided in association with the University of the West of England, Bristol University and the University of Bath.

#### Performance

North Bristol NHS Trust researchers were involved as co-authors in almost 2,300 publications from 2011–2018 (P: 2,285). These publications were cited almost 25,000 times up to 2019 (TCS: 24,929). There were 730 publications that belong to the top 20% most cited in their fields. In proportion to their contribution to the output (P[fract]), this adds up to 24% (PP[top20%]: 0.24). Also measured by MNCS, the impact of North Bristol NHS trust is well above world average (MNCS: 1.15). The journals in which North Bristol NHS Trust publishes have similar impact rate (MNJS: 1.12). A large share of the output is co-authored with other organisations (PP[collab]: 0.84), while 35% of the output involves international collaboration (PP[int collab]: 0.35).

#### Profiles

North Bristol NHS Trust publishes most in collaboration with other UK organisations. In addition a large share of the output involves international collaboration, which has a higher citation-based impact (MNCS: 1.70 and PP[top20%]: 0.35).

The research profile shows a preference for *Urology & Nephrology*, *Surgery*, *General & Internal Medicine* and *Orthopedics*. The impact of *Urology & Nephrology* is high (around 25% above the world average (MNCS: 1.26, PP[top20%]: 0.29). Other subject categories with less output but high impact are: *Clinical Neurology*, *Neurosciences*, *Oncology*, *Endocrinology & Metabolism*, *Respiratory Systems*, *Pediatrics*, *Infectious Diseases* and *Rheumatology*.

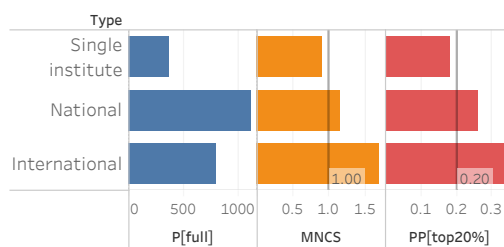
### North Bristol NHS Trust

#### Bibliometric performance and profiles of the biomedical & health research

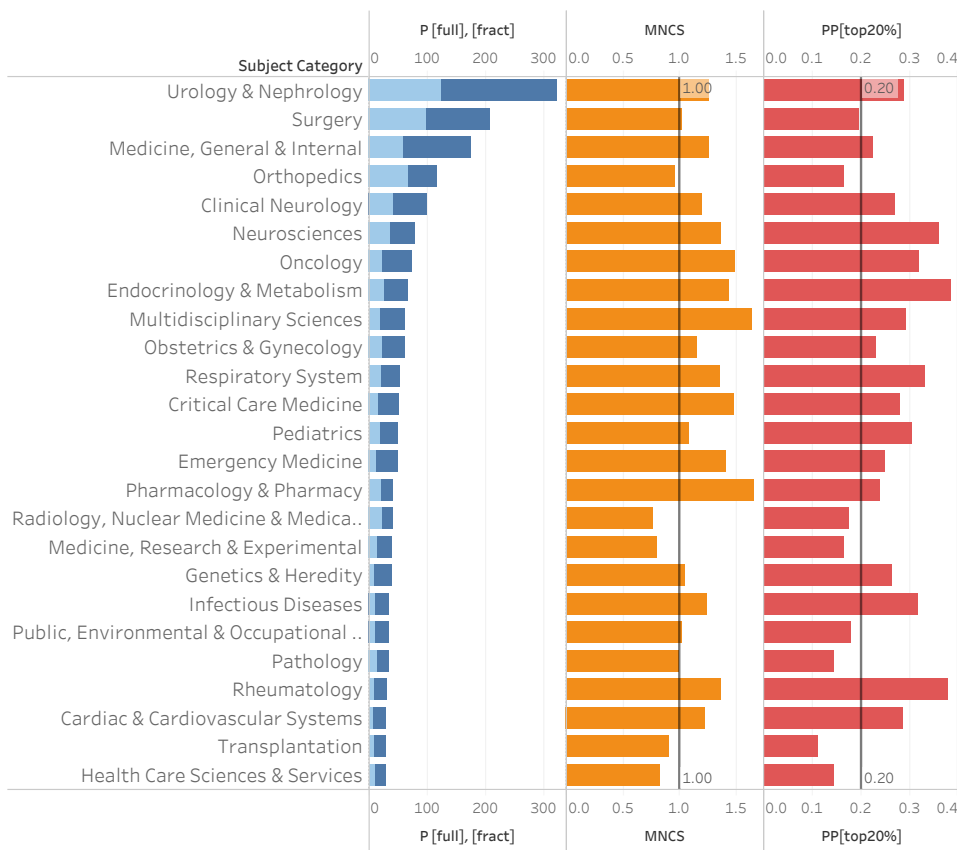
##### Performance

	Article	Review	Overall
P[full]	1,913	372	<b>2,285</b>
P[fract]	719	172	<b>891</b>
PP[collab]	0.85	0.77	<b>0.84</b>
PP[int collab]	0.35	0.34	<b>0.35</b>
TCS	20,296	4,639	<b>24,935</b>
P[top20%]	555	175	<b>730</b>
PP[top20%]	0.21	0.39	<b>0.24</b>
MNCS	1.06	1.56	<b>1.15</b>
MNJS	1.07	1.35	<b>1.12</b>

##### Collaboration profile



##### Research profile



### 3.2.25 Newcastle University

Newcastle University is a UK public research university based in Newcastle upon Tyne, North East England, with more than 27,000 students and 2,430 academic staff in 2018/19. The university is a red brick university and a member of the Russell Group, an association of research-intensive UK universities.

#### Performance

The biomedical and health research staff at Newcastle University were involved in more than 12,000 publications from 2011 to 2018. Almost 90% of the output was published in collaboration with other organisations (PP[collab]: 0.87), while 57% involved international collaboration (PP[int collab]: 0.57). In total these publications were cited almost 165,000 times (TCS: 164,793) up to 2019. No less than 30% of their publications belonged to the top 20% most cited in their fields (PP[top 20%]: 0.30), which is 50% above the expected rate (i.e. world average). Also the MNCS indicates high impact for the output (MNCS: 1.43). Finally, the journals in which biomedical and health research was published have an impact at a rate of 1.36.

#### Profiles

The collaboration profile shows a clear preference of the biomedical and health research staff at Newcastle University for output at least one foreign partner. More than half the output involves international collaboration (P: 6,998), which is almost twice the output involving only UK partners (P: 3,808). A much smaller amount of the output involves Newcastle University only. (P: 1,574).

Looking at the research profile, we can see that the majority of output is published in *multidisciplinary sciences* journals. The most often used journals are *Plos ONE*, *Scientific Reports* and *Nature communications*. In these journals research involving larger teams was published as we read from the large differences between the P[full] and P[fract] for this category. Both MNCS and PP[top20%] indicate high impact for research in these journals as well as in journals in a broad range of subject categories: *Clinical Neurology*, *Neurosciences*, *Biochemistry & Molecular Biology*, *General & Internal Medicine*, and *Genetics & Heredity*. Actually in all categories where Newcastle University Biomedical and health staff was involved in more than 100 publications the impact is well above average. Together these categories span a wide range of biomedical and health fields.



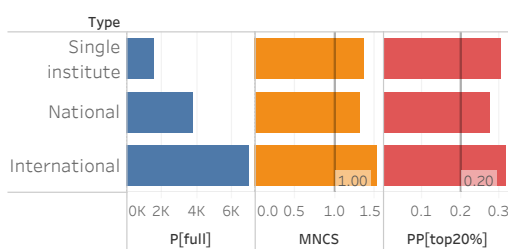
## Newcastle University

### Bibliometric performance and profiles of the biomedical & health research

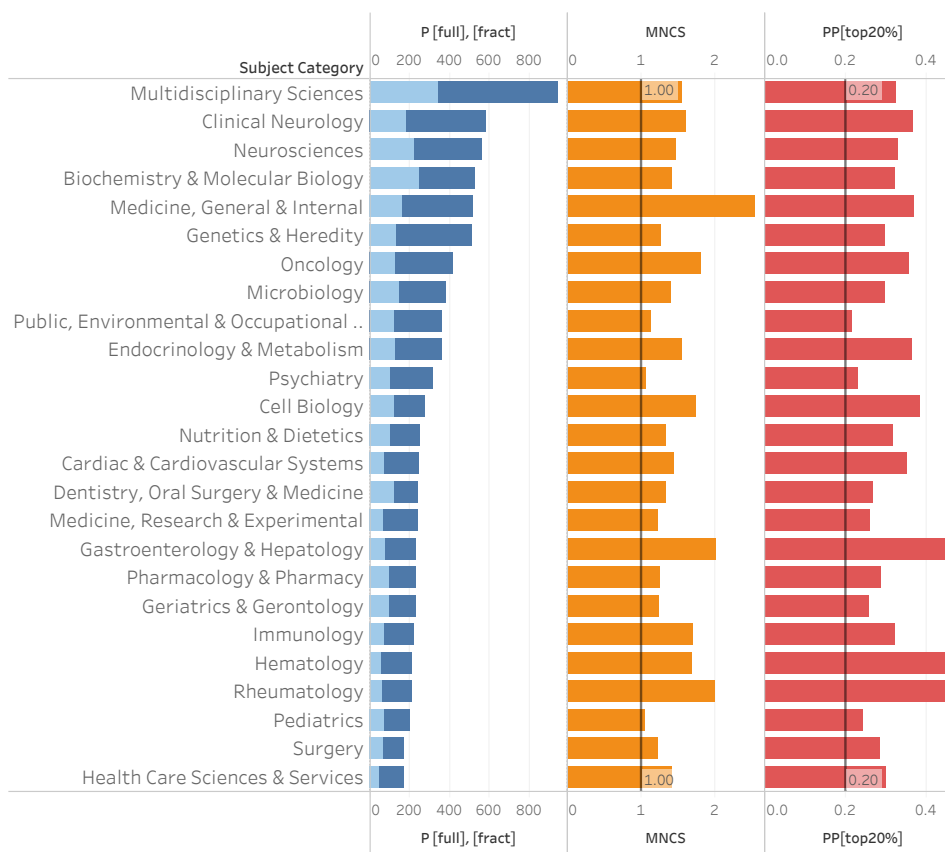
#### Performance

	Article	Review	Overall
P[full]	10,706	1,674	<b>12,380</b>
P[fract]	3,799	755	<b>4,554</b>
PP[collab]	0.89	0.79	<b>0.87</b>
PP[int collab]	0.58	0.48	<b>0.57</b>
TCS	130,510	34,169	<b>164,679</b>
P[top20%]	3,360	876	<b>4,236</b>
PP[top20%]	0.26	0.51	<b>0.30</b>
MNCS	1.24	2.38	<b>1.43</b>
MNJS	1.24	1.92	<b>1.35</b>

#### Collaboration profile



#### Research profile



### 3.2.26 Newcastle upon Tyne Hospitals NHS Foundation Trust

Newcastle upon Tyne Hospitals NHS Foundation Trust is one of the Shelford Group of University Teaching Hospitals and an NHS Foundation Trust. It provides acute medical services in Newcastle upon Tyne, England, at the Royal Victoria Infirmary and Freeman Hospital, the Campus for Ageing and Vitality (the former Newcastle General Hospital site), Newcastle Dental Hospital, Newcastle Fertility Centre and the Northern Genetics Service.

#### Performance

Research staff at the Newcastle Upon Tyne NSH Foundation Trust were involved in more than 3,800 publications (P: 3,856) in the period from 2011 to 2018. Almost all of them (PP[collab]: 0.90) were co-authored with other organisations. 40% of the output involved international collaboration (PP[int collab]: 0.40). These publications were cited almost 48,000 times (TCS: 47,865) up to 2019. Normalised by field and publication year the impact was measured at 1.21 (MNCS) and 0.25 (PP[top20%]), which is well above the world average (where the world average for MNS is 1 and for [PP top20%] is 0.20). The impact of journals in which the staff published is also well above the world average (MNJS: 1.20, where 1 is the world average).

#### Profiles

Looking at the collaboration profile, we see that half of the output involves national collaboration, while another 40% involves international collaboration. The normalised impact (measured by MNCS and PP[top20%]) is highest from the latter category. The impact of the research co-authored with other UK organisations only is above the world average, while the output published by their own staff only is around the world average.

In the research profile, we can see the broad spectrum of fields in which the Newcastle Upon Tyne NSH Foundation Trust publishes. The top subject categories are: *Surgery, General & Internal Medicine, Oncology, Cardiac & Cardiovascular Systems, Pediatrics* and *Clinical Neurology*. In all these categories, the impact is also above the world average.

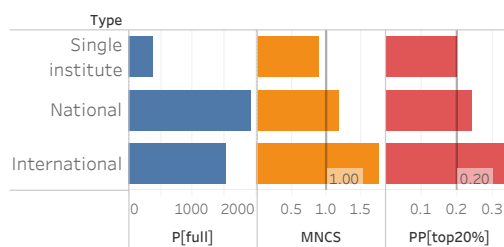
### Newcastle upon Tyne Hospitals NHS Foundation Trust

#### Bibliometric performance and profiles of the biomedical & health research

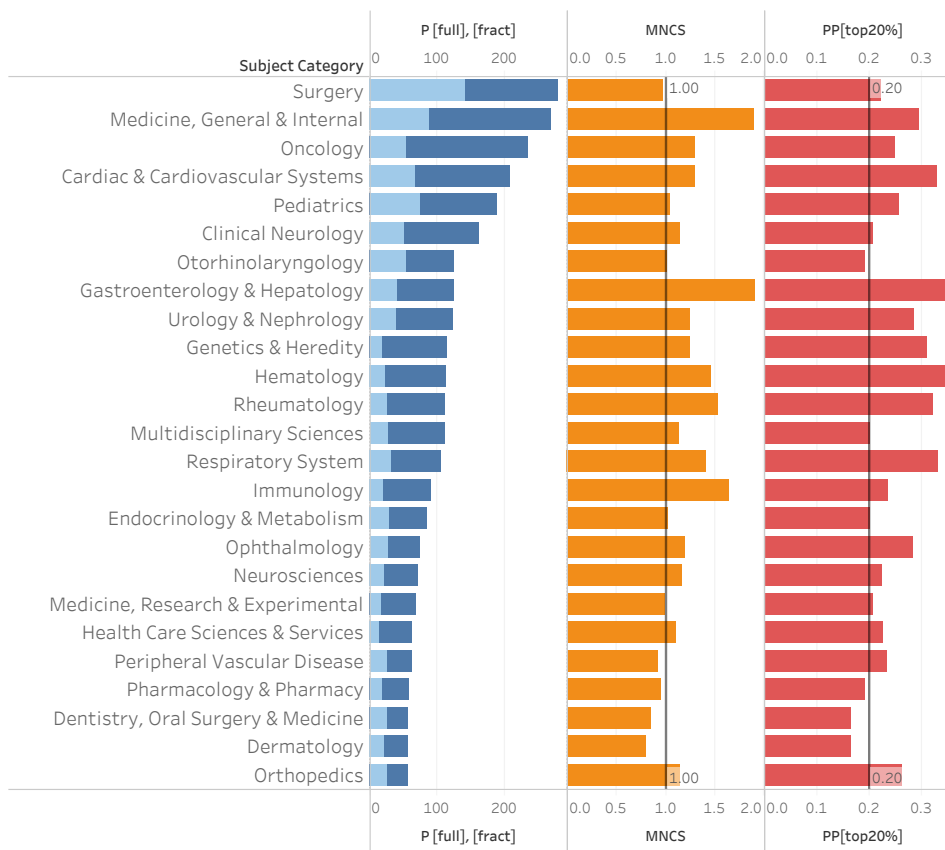
##### Performance

	Article	Review	Overall
P[full]	3,267	589	<b>3,856</b>
P[fract]	1,041	223	<b>1,264</b>
PP[collab]	0.90	0.89	<b>0.90</b>
PP[int collab]	0.40	0.36	<b>0.40</b>
TCS	39,134	8,694	<b>47,828</b>
P[top20%]	1,044	256	<b>1,300</b>
PP[top20%]	0.22	0.38	<b>0.25</b>
MNCS	1.10	1.72	<b>1.21</b>
MNJS	1.13	1.52	<b>1.20</b>

##### Collaboration profile



##### Research profile



### 3.2.27 Nottingham University Hospitals NHS Trust

Nottingham University Hospitals NHS Trust (NUH) is one of England's largest acute teaching trusts. It was established on 1 April 2006 following the merger of Nottingham City Hospital and the Queen's Medical Centre NHS Trusts. They provide acute and specialist services to 2.5 million people within Nottingham and surrounding communities at the Queen's Medical Centre (QMC) and the City Hospital campuses, as well as specialist services for a further 3–4 million people from across the region.

#### Performance

The biomedical and health research staff at NUH were involved in 5,315 publications in the period 2011 to 2018. A vast majority of the output was co-authored with other organisations (PP[collab]: 0.83), while 41% involved international collaboration (PP[int collab]: 0.41). The output in which NUH was involved received more than 66,000 citations up to 2019. 1,737 publications belong to the top 20% most cited in their fields (P[top20%]). The MNCS and PP[top20%] indicators show that NUH has a scientific impact well above the world average (MNCS: 1.23, where 1 is the world average and PP[top20%]: 0.26, where 0.2 is the world average). Finally, the impact of the journals in which NUH published is 20% above the world average (MNJS: 1.20).

#### Profiles

As mentioned, the vast majority of the output was co-authored with other organisations. In the collaboration profile we can see that there is a balance between national and international collaboration. The impact (MNCS and PP[top20%]) of the latter is somewhat higher.

Looking at the research profile, we see a focus on *Oncology* research. NUH is most involved in papers in *Oncology* journals. If we normalise the output by contribution (P[fract]), we see that publications in *Surgery* journals are at the top. Other important subject categories include: *General & Internal Medicine*, *Gastroenterology & Hepatology*, and *Clinical Neurology*. The impact of these top categories is well above the world average, and particularly high for *General & Internal Medicine* and *Gastroenterology & Hepatology*. In addition we found that the impact is high in *Hematology*, *Rheumatology*, *Endocrinology & Metabolism* and *Nutrition & Dietetics*.

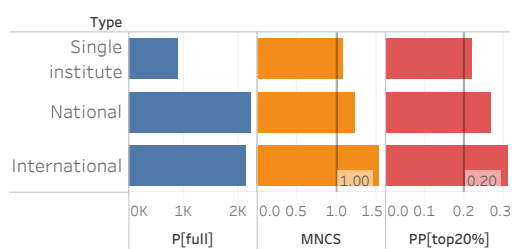
## Nottingham University Hospitals NHS Trust

### Bibliometric performance and profiles of the biomedical & health research

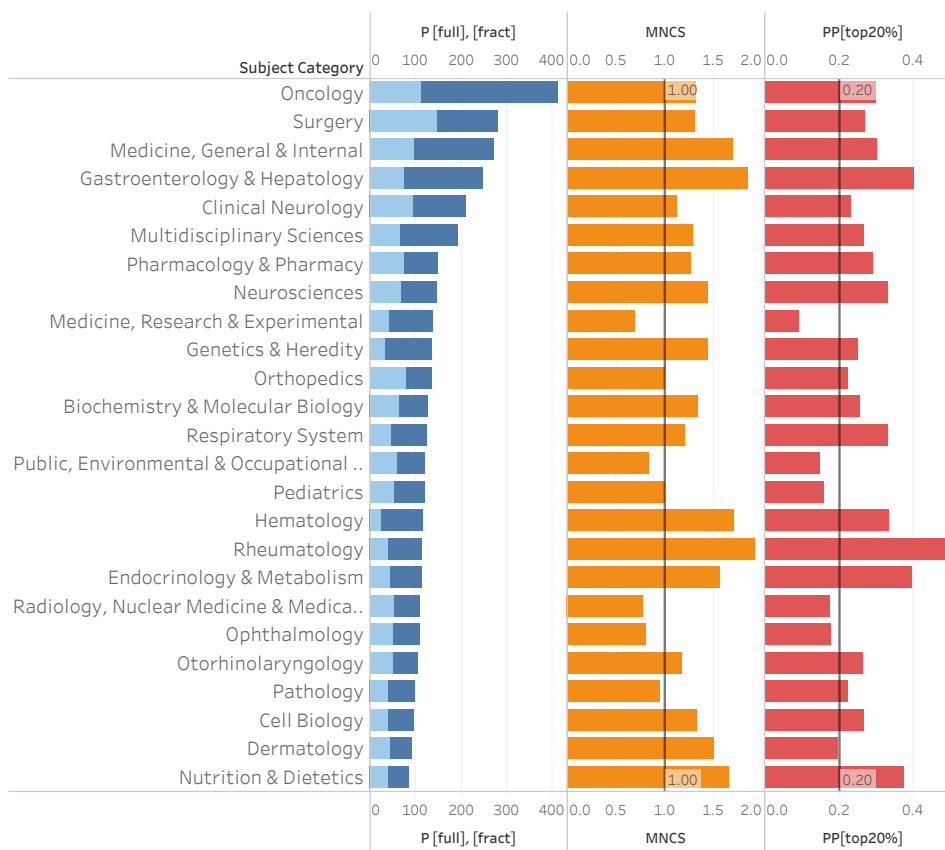
#### Performance

	Article	Review	Overall
P[full]	4,517	798	<b>5,315</b>
P[fract]	1,804	374	<b>2,177</b>
PP[collab]	0.84	0.77	<b>0.83</b>
PP[int collab]	0.41	0.37	<b>0.41</b>
TCS	53,097	13,032	<b>66,129</b>
P[top20%]	1,356	379	<b>1,735</b>
PP[top20%]	0.22	0.44	<b>0.26</b>
MNCS	1.07	2.01	<b>1.23</b>
MNJS	1.14	1.53	<b>1.20</b>

#### Collaboration profile



#### Research profile



### 3.2.28 Oxford University Hospitals NHS Foundation Trust

Oxford University Hospitals NHS Foundation Trust is an English teaching hospital and part of the Shelford Group. It is one of the UK's largest teaching hospitals and one of the largest hospitals in Europe. The Trust is made up of four hospitals – the John Radcliffe Hospital (which includes the Children's Hospital, West Wing, Eye Hospital, Heart Centre and Women's Centre), the Churchill Hospital and the Nuffield Orthopaedic Centre, all located in Oxford, and the Horton General Hospital in Banbury, in north Oxfordshire.

#### Performance

The research staff at Oxford University Hospitals NHS Foundation Trust were involved in 10,680 publications in the period 2011 to 2018. Almost 90% of the output was co-authored with other (PP[collab]: 0.88), while 58% involved international collaboration (PP[int collab]: 0.58). In total, these publications received 184,254 citations up to 2019. Normalised by the field and year in which they were published, they had a high impact (MNCS: 1.57 and PP[top20%]: 0.34) of around 50% above the world average. Also, the journals in which Oxford University Hospitals NHS Foundation Trust published have an impact of almost 50% above the world average (MNJS: 1.48).

#### Profiles

The collaboration profile affirms the preference for international co-authored publications and shows that this type has the highest impact (MNCS: 1.86 and PP[top20%]: 0.38). The other types of output have somewhat less impact but are still well above the world average.

Finally, the research profile of the Oxford University Hospitals NHS Foundation Trust shows that a large share of the output is published in *multidisciplinary Science* journals (P: 711) with an impact of twice the world average (MNCS almost 2 and PP[top20%] of nearly 0.4). These papers were published mostly in *PloS ONE*, *Nature Communications* and *Scientific Reports*. The (other) most prominent subject categories in which Oxford University Hospitals NHS Foundation Trust published are *General & Internal Medicine*, *Clinical neurology*, *Surgery*, *Oncology*, *Genetics & Heredity*, *Cardiac & Cardiovascular Systems*, *Immunology*, *Hematology*, and *Neurosciences*. In all these categories the impact was high and in some cases also twice the world average.

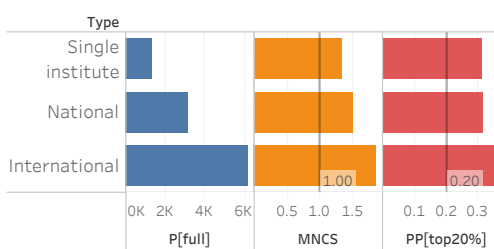
### Oxford University Hospitals NHS Foundation Trust

#### Bibliometric performance and profiles of the biomedical & health research

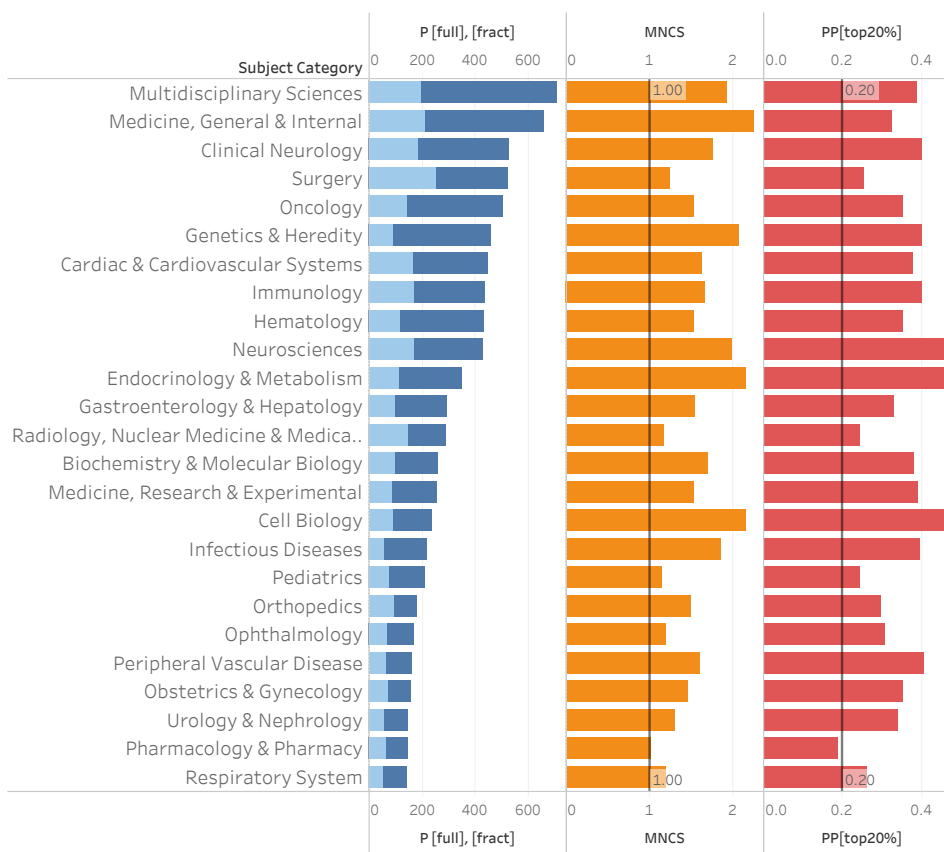
#### Performance

	Article	Review	Overall
P[full]	8,967	1,713	<b>10,680</b>
P[fract]	2,978	791	<b>3,768</b>
PP[collab]	0.90	0.78	<b>0.88</b>
PP[int collab]	0.60	0.47	<b>0.58</b>
TCS	150,807	33,590	<b>184,397</b>
P[top20%]	3,384	861	<b>4,245</b>
PP[top20%]	0.31	0.47	<b>0.34</b>
MNCS	1.42	2.12	<b>1.57</b>
MNJS	1.38	1.86	<b>1.48</b>

#### Collaboration profile



#### Research profile



### 3.2.29 Queen Mary University London

Queen Mary University of London (QMUL) is a public research university in London, England, and a constituent college of the federal University of London. It has five campuses across East and Central London and is organised into three faculties – the Faculty of Humanities and Social Sciences, the Faculty of Science and Engineering and Barts and The London School of Medicine and Dentistry. QMUL is a member of the Russell Group of British research universities. In 2018/19 the university had around 26,000 students.

#### Performance

The biomedical and health staff at QMUL were involved in 11,539 publications in the period 2011 to 2018. Almost 90% of that output is co-authored with other organisations (PP[collab]: 0.88), while nearly 60% involves international collaboration (PP[int collab]: 0.59). In total the output attracted almost 184,000 citations (TCS: 183,870), while 4,319 of the publications are identified as belonging to the top[20%] most cited publications in their field and publication year. Normalised by contribution of QMUL, the PP[top20%] is measured at 0.32, which is more than 50% above the world average. The MNCS indicates the same with 1.49. Finally, the journals in which QMUL published have an impact at 45% above the world average (MNJS: 1.45).

#### Profiles

As mentioned above, the majority of biomedical and health output involves international collaboration. Also in terms of impact, this type of collaboration stands out with MNCS at 1.72 and PP[top20%] at 0.35. The other types are also well above the world average.

Researchers at QMUL were involved predominantly in multidisciplinary journals (e.g. *Plos ONE*, *Scientific Reports* and *Nature communications*) and in journals in *Oncology*. However, normalised by the number of co-authoring organisations, *General & Internal Medicine* and *Biochemistry & Moleculaire Biology* show as important categories. In all subject categories in which QMUL was involved with more than 100 publications, the impact is well above the world average (both measured by MNCS and PP[top20%]). In *General & Internal Medicine* the impact measured by MNCS reaches almost three times the world average (MNCS: 2.77).



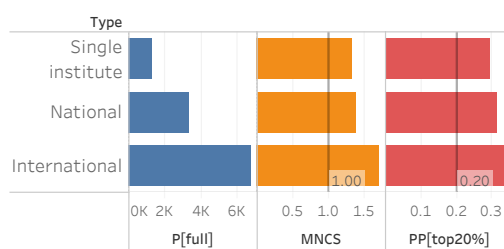
## Queen Mary University of London

### Bibliometric performance and profiles of the biomedical & health research

#### Performance

	Article	Review	Overall
P[full]	9,729	1,810	<b>11,539</b>
P[fract]	3,298	821	<b>4,119</b>
PP[collab]	0.90	0.78	<b>0.88</b>
PP[int collab]	0.60	0.52	<b>0.59</b>
TCS	147,734	36,218	<b>183,952</b>
P[top20%]	3,431	889	<b>4,319</b>
PP[top20%]	0.29	0.45	<b>0.32</b>
MNCS	1.34	2.09	<b>1.49</b>
MNJS	1.38	1.73	<b>1.45</b>

#### Collaboration profile



#### Research profile



### 3.2.30 Royal Brompton and Harefield NHS Foundation Trust

The Royal Brompton and Harefield NHS Foundation Trust runs the Royal Brompton Hospital in Kensington and Harefield Hospital in Hillingdon, London, England. They are specialist cardiothoracic hospitals.

#### Performance

The Royal Brompton and Harefield NHS Foundation Trust staff were involved in 3,781 publications from 2011 to 2018. Almost all output was co-authored with other organisations (PP[collab]: 0.93), while almost 2 out of 3 publications involved international collaboration (PP[int collab]: 0.64). In total, the output received 60,502 citations (TCS) up to 2019. Normalised by field and year, the impact of the output was high. On average, publications were cited at a rate of 32% above the world average (MNCS: 1.32), while the proportion of output belonging to the top 20% was 0.29 (PP[top20%]). The impact of the journals in which the organisation published is 34% above the world average (MNJS: 1.34).

#### Profiles

As mentioned above the vast majority of output from the Royal Brompton and Harefield NHS Foundation Trust relates to co-authored publications, while two-thirds involves international partners. The latter also have the highest impact with MNCS at 1.72 and PP[top20%] at 0.35, which means around 75% above the world average. The remaining national collaboration output has an impact well above the world average (MNCS: 1.22 and PP[top20%]: 0.30).

Looking at the research profile, we see that this is an organisation specialised in *Cardiac & Cardiovascular Systems* and *Respiratory System* research, which affirms that this is a specialist cardiothoracic research hospital. Also, the impact of these categories is high (e.g. MNCS 1.32 and 1.41).

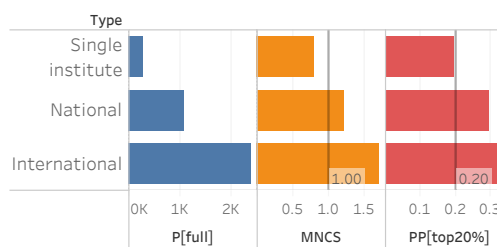
### Royal Brompton & Harefield NHS Foundation Trust

#### Bibliometric performance and profiles of the biomedical & health research

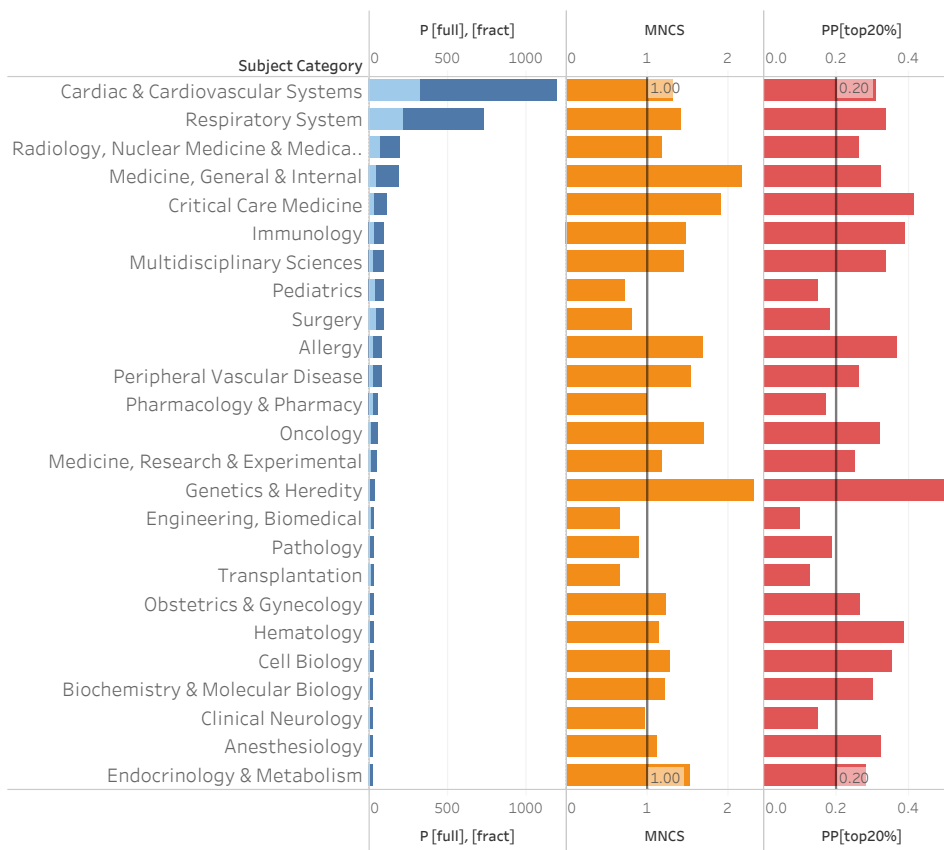
##### Performance

	Article	Review	Overall
P[full]	3,088	693	<b>3,781</b>
P[fract]	874	234	<b>1,108</b>
PP[collab]	0.93	0.92	<b>0.93</b>
PP[int collab]	0.65	0.58	<b>0.64</b>
TCS	50,197	10,255	<b>60,452</b>
P[top20%]	1,230	280	<b>1,511</b>
PP[top20%]	0.28	0.33	<b>0.29</b>
MNCS	1.29	1.45	<b>1.32</b>
MNJS	1.33	1.38	<b>1.34</b>

##### Collaboration profile



##### Research profile



### 3.2.31 Royal Free London NHS Foundation Trust

The Royal Free London NHS Foundation Trust (formerly the Royal Free Hampstead NHS Trust) is an NHS foundation trust based in London, United Kingdom. It comprises the Royal Free Hospital, Barnet Hospital, and Chase Farm Hospital, as well as clinics run by the trust at Edgware Community Hospital, Finchley Memorial Hospital and North Middlesex University Hospital.

#### Performance

Research staff at the Royal Free London NHS Foundation Trust were involved in slightly more than 4,000 publications (P[full]: 4,028) in the period 2011 to 2018. 86% of these publications were co-authored with other organisations (PP[collab]: 0.86). The majority of those (PP[int collab]: 0.49) involved international collaboration. In total, these publications were cited 55,291 times up to 2019, while 1,424 of the publications belong to the top 20% most cited in their fields and years (P[top20%]). Normalised by field and year, the research of the Royal Free London NHS Foundation Trust has an impact well above the world average (MNCS: 1.23 and PP[top20%]: 0.26). Moreover, the journals in which these publications were published have an impact of 1.21 (MNJS), which is 21% above world average.

#### Profiles

Looking at the collaboration profile, we see that the international publications not only cover the largest part of the output but also have the highest impact (MNCS: 1.78 and PP[top20%]: 0.35). The national co-authored output attracted somewhat few citations but the impact is well above the world average (MNCS 1.29 and PP[top20%]: 0.29). The impact of the output involving the Royal Free London NHS Foundation Trust only, is impact just below the world average. The research profile shows a broad spectrum of subject categories with a substantial output. We mention the ones in which Royal Free London NHS Foundation Trust staff was involved in more than 150 publications: *General & Internal Medicine, Gastroenterology & Hepatology, Surgery, Urology & Nephrology, Immunology, Hematology, Oncology, and Infectious Diseases*. In almost all of these subject categories, the impact is well above world average, except in *Immunology*. In *Gastroenterology & Hepatology*, the impact very high (MNCS: 2.08 and PP[top20%]: 0.45), i.e. two times the world average.

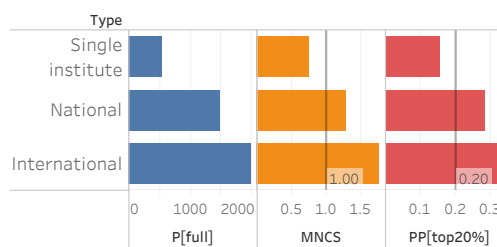
### Royal Free London NHS Foundation Trust

#### Bibliometric performance and profiles of the biomedical & health research

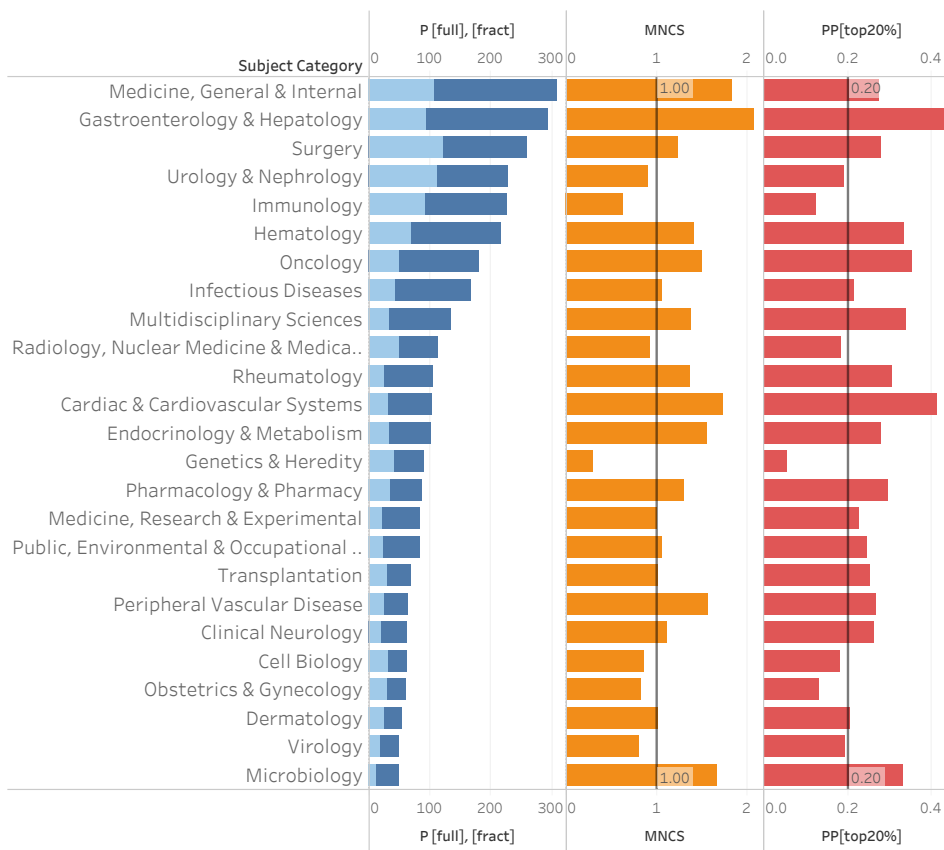
##### Performance

	Article	Review	Overall
P[full]	3,296	732	<b>4,028</b>
P[fract]	1,142	297	<b>1,439</b>
PP[collab]	0.87	0.86	<b>0.86</b>
PP[int collab]	0.50	0.48	<b>0.49</b>
TCS	45,399	9,885	<b>55,284</b>
P[top20%]	1,101	321	<b>1,422</b>
PP[top20%]	0.22	0.39	<b>0.25</b>
MNCS	1.12	1.64	<b>1.23</b>
MNJS	1.14	1.47	<b>1.21</b>

##### Collaboration profile



##### Research profile



### 3.2.32 Royal Marsden NHS Foundation Trust

The Royal Marsden NHS Foundation Trust is an NHS Foundation Trust which operates the Royal Marsden Hospital, a specialist cancer treatment hospital in London.

#### Performance

Research staff at the Royal Marsden NHS Foundation Trust were involved in 3,867 publications in the period 2011 to 2018. Almost 90% of the output was co-authored with other organisations (PP[collab]: 0.89), while 56% involved international collaboration (PP[int collab]: 0.56). The normalised impact as measured by MNCS is 1.56 and by PP[top20%], 0.32. They both indicate that the impact is more than 50% above world average. Finally, the journals in which the Royal Marsden NHS Foundation Trust publishes have an impact at 50% above world average (MNJS: 1.50).

#### Profiles

The collaboration profile again shows the importance of international collaboration for this organisation, not only the number of publications of this type but also by the high impact ratios (MNCS: 2.29 and PP[top20%]: 0.41). Also the other types of collaboration output have an impact (well) above the world average.

The research profile shows an obvious focus on *Oncology* with 1,736 publications in which the research staff were involved, mostly in large consortia/partnerships since the output normalised by the number of co-authoring organisations is much lower (P[fract]: 491). The second subject category in order of output is *Radiology, Nuclear Medicine & Medical Imaging* with 421 publications in which they were involved. In both categories, the impact is above the world average. For *Oncology*: MNCS: 1.69 and PP[top20%]: 0.37 and for *Radiology, Nuclear Medicine & Medical Imaging*: MNCS: 1.21 and PP[top20%]: 0.30.

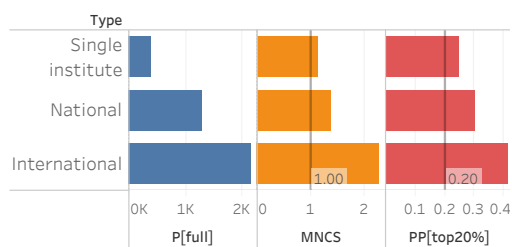
### The Royal Marsden NHS Foundation Trust

Bibliometric performance and profiles of the biomedical & health research

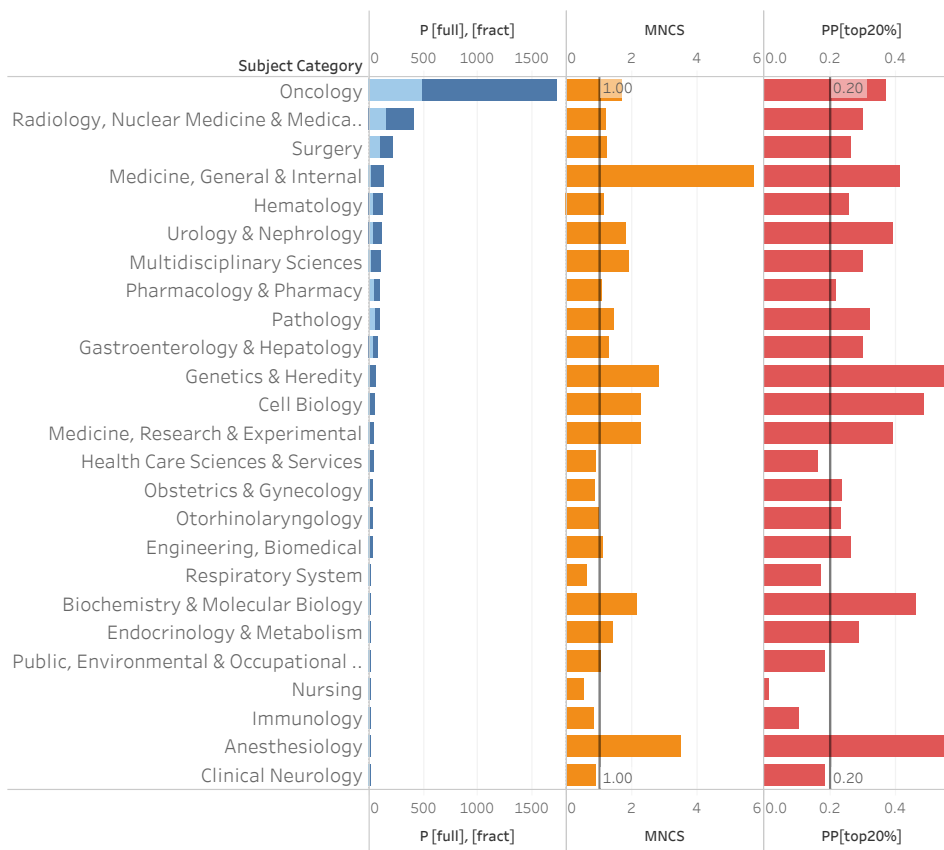
#### Performance

	Article	Review	Overall
P[full]	3,203	664	<b>3,867</b>
P[fract]	912	294	<b>1,206</b>
PP[collab]	0.92	0.80	<b>0.89</b>
PP[int collab]	0.58	0.43	<b>0.56</b>
TCS	85,077	12,941	<b>98,018</b>
P[top20%]	1,362	295	<b>1,657</b>
PP[top20%]	0.30	0.38	<b>0.32</b>
MNCS	1.49	1.78	<b>1.56</b>
MNJS	1.47	1.59	<b>1.50</b>

#### Collaboration profile



#### Research profile



### 3.2.33 Royal Veterinary College – University London

The Royal Veterinary College (RVC) is a veterinary school located in London and a constituent college of the federal University of London. The RVC was founded in 1791 and joined the University of London in 1949. It is the oldest and largest veterinary school in the United Kingdom.

#### Performance

Biomedical and health research staff at RVC were involved in 2,799 publications in the period 2011 to 2018. The majority of this output involved international collaboration (PP[int collab]: 0.54), while in total 81% was co-authored with other organisations (PP[collab]: 0.81), which means that almost 19% of the output was published by RVC only. The RVC publications were cited 18,480 times up to 2019. Normalised by field and year, the RVC has a (citation-based) impact of 1.17 (MNCS). The proportion of top 20% most cited publications (PP[top20%]) was 0.24. The impact of journals in which RVC publishes is 7% above the world average (MNJS: 1.07).

#### Profiles

The collaboration profile shows the already mentioned preference for international collaboration. 1,510 publications were co-authored with organisations outside the UK. The impact of these papers is more than 40% above the world average (MNCS: 1.39 and PP[top20%]: 0.29). The impact of nationally co-authored publications and single-institute publications is around the world average.

The research profile shows that the vast majority of research output at RVC is obviously published in *Veterinary Sciences*, with an impact just above the world average. In addition many publications were published in *Multidisciplinary* journals, e.g. *PloS ONE* and *Scientific Reports*. In this category the impact of RVC is high (MNCS: 1.59 and PP[top20%]: 0.32). The publications in *Parasitology* and *Infectious Diseases* journals have a similar high impact, albeit with fewer publications (P[full]: 78 and 63). Other subject categories reflecting the research profile of RVC are *Biochemistry & Molecular Biology*, *Immunology*, *Cell Biology*, *Microbiology*, and *Endocrinology & Metabolism*, with almost 60 publications each but less impact. Other categories often have high impact but with far fewer publications.



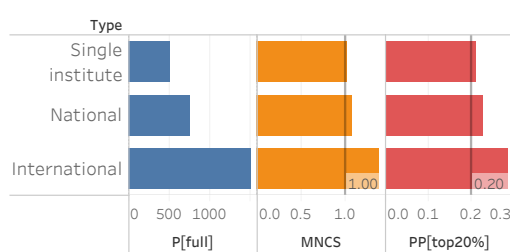
### Royal Veterinary College, University of London

#### Bibliometric performance and profiles of the biomedical & health research

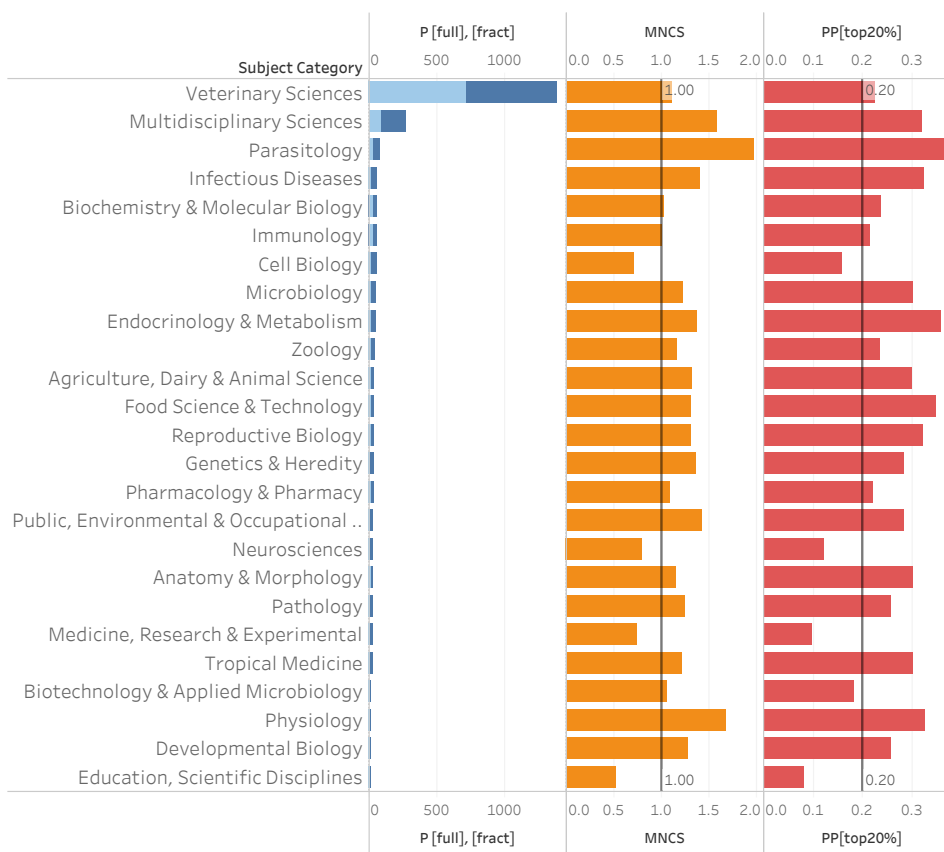
##### Performance

	Article	Review	Overall
P[full]	2,581	218	<b>2,799</b>
P[fract]	1,144	107	<b>1,251</b>
PP[collab]	0.82	0.75	<b>0.81</b>
PP[int collab]	0.54	0.53	<b>0.54</b>
TCS	14,906	3,574	<b>18,480</b>
P[top20%]	660	95	<b>755</b>
PP[top20%]	0.23	0.39	<b>0.24</b>
MNCS	1.11	1.82	<b>1.17</b>
MNJS	1.03	1.48	<b>1.07</b>

##### Collaboration profile



##### Research profile



### 3.2.34 South London and Maudsley NHS Foundation Trust

South London and Maudsley NHS Foundation Trust, also known as SLaM, is an NHS foundation trust based in London, England, which specialises in mental health. It comprises three psychiatric hospitals (Bethlem Royal Hospital, Lambeth Hospital and the Maudsley Hospital), the Ladywell Unit based at University Hospital Lewisham, and over 100 community sites and 300 clinical teams. SLaM forms part of the institutions that make up King's Health Partners, an academic health science centre.

#### Performance

Research staff at SLaM were involved in 2,309 publications in the period 2011 to 2018. Almost all publications were co-authored with other organisations (PP[collab]: 0.97), while 53% involved international collaboration (PP[int collab]: 0.55). In total all SLaM publications received 28,462 citations up to 2019. Normalised by field and year, the impact is 56% above the world average (MNCS: 1.56), while the PP[top20%] is 0.33. The journals in which SLaM publishes have an impact at 39% above the world average (MNJS: 1.39).

#### Profiles

The collaboration profile shows the minor share of publication with SLaM as the sole co-authoring organisation. The largest share is taken by the internationally co-authored output with a very high impact (MNCS: 1.87 and PP[top20%]: 0.41). The output with other UK organisations has an impact of 1.39 (MNCS), 0.28 (PP[top20%]), which is also well above the word average.

With a focus on mental health, the most prominent subject category in the research profile is *Psychiatry*, with 808 publications in which SLaM was involved and a high impact measured by MNCS of 1.75 (PP[top20%]: 0.37). Other subject categories with more than 100 publications in which SLaM researchers were involved are *Clinical Psychology*, *Neurosciences*, *Substance Abuse*, *Clinical Neurology*, and *General & Internal Medicine*. In all these categories, the citation-based impact is around or over 75% above the world average.

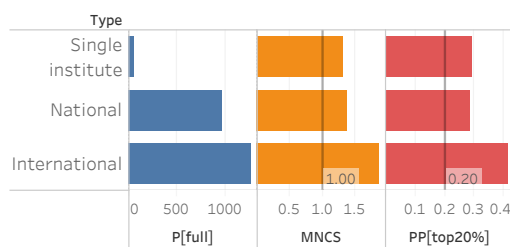
### South London and Maudsley NHS Foundation Trust

#### Bibliometric performance and profiles of the biomedical & health research

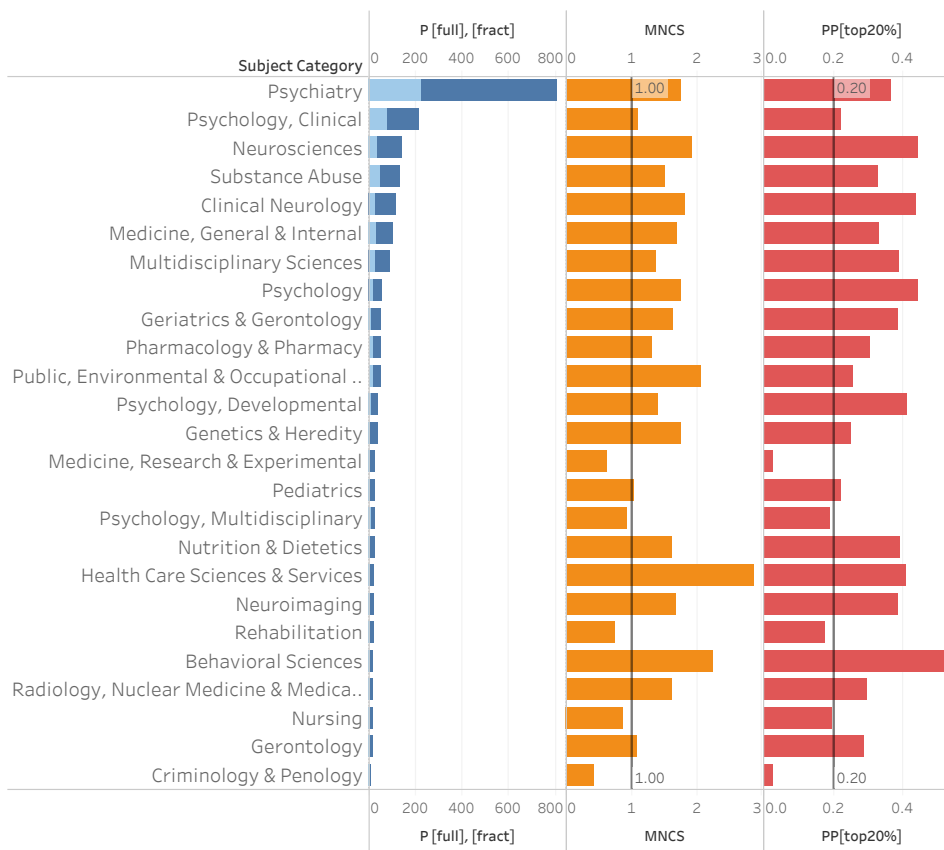
##### Performance

	Article	Review	Overall
P[full]	1,904	405	2,309
P[fract]	543	110	652
PP[collab]	0.98	0.97	0.97
PP[int collab]	0.53	0.63	0.55
TCS	20,983	7,479	28,462
P[top20%]	614	242	855
PP[top20%]	0.29	0.55	0.33
MNCS	1.33	2.70	1.56
MNJS	1.29	1.87	1.39

##### Collaboration profile



##### Research profile



### 3.2.35 Sheffield Teaching Hospitals NHS Foundation Trust

Sheffield Teaching Hospitals NHS Foundation Trust (STH) is an NHS foundation trust with around 17,000 employees, managing five hospitals: Northern General Hospital, Royal Hallamshire Hospital, Jessop Wing, Weston Park Cancer Centre and Charles Clifford Dental Hospital.

#### Performance

The performance table lists output and impact indicators for STH publications within the scope of this analysis. This amounts to a total publication count of 3,316, or 1,260 if using fractional counting. STH collaborates with at least one author outside of the trust in 86% of cases, and with at least one international author in 39%. Notably, whereas generally reviews have lower collaboration proportions, STH reviews actually have a slightly higher international collaboration rate. As for the impact indicators, STH performs above world average on all three of them, ranging between 14 to 20% above world average. When we exclude the reviews and look only at the articles, impact dips to only just above world average.

#### Profiles

As is clear in the collaboration figure, national collaboration makes up the biggest group, showing that the trust really focuses more closely to home in its research (compared, for instance to most universities in this analysis, where international collaboration generally comprises the majority). Impact does follow the pattern we see in most units of analysis, with international outperforming national, which in turn outperforms single institute. The difference between international and national does look starker here than it does for many of the other units of analysis.

The research profile, finally, lists the top 25 WoS subject categories for STH publications. The distribution here shows varied research interests, with the top seven categories standing out in terms of research output. Note, though, that on fractional counting (arguably measuring STH's contribution to the publications), *Oncology* would drop from third to seventh position, even being surpassed by *Radiology, Nuclear Medicine & Medical Imaging*, which only has half the number of full-counting publications. The top four categories (by full-counting output) also have the highest impact, as measured in MNCS, in particular *Urology & Nephrology* has a high impact (almost two times the world average). For the PP[top20%], *General & Internal Medicine* has a lower impact compared to *Oncology* and *Endocrinology & Metabolism*. This can be partially explained by the occurrence of some high-impact journals like *The Lancet* and *New England Journal of Medicine* in *General & Internal Medicine*, who feature MNCS scores so high (14.15 and 14.06 respectively).

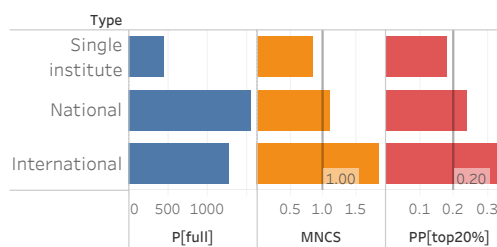
### Sheffield Teaching Hospitals NHS Foundation Trust

#### Bibliometric performance and profiles of the biomedical & health research

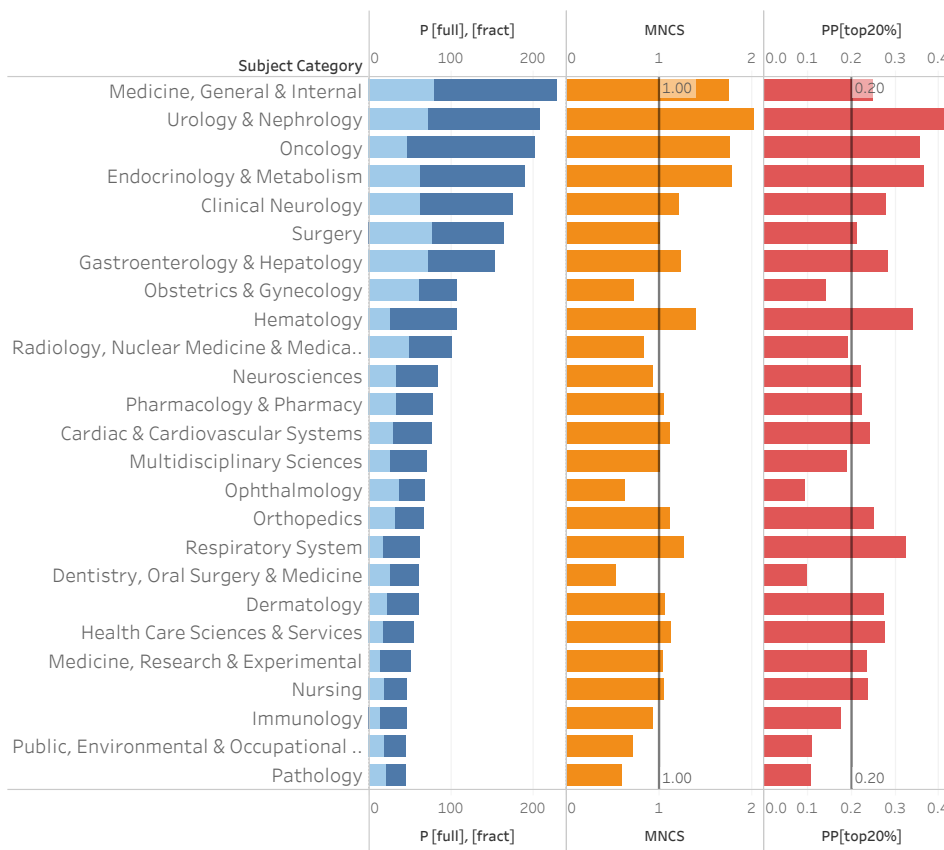
##### Performance

	Article	Review	Overall
P[full]	2,709	607	<b>3,316</b>
P[fract]	1,006	255	<b>1,260</b>
PP[collab]	0.87	0.83	<b>0.86</b>
PP[int collab]	0.38	0.42	<b>0.39</b>
TCS	32,117	8,336	<b>40,453</b>
P[top20%]	830	274	<b>1,104</b>
PP[top20%]	0.21	0.37	<b>0.24</b>
MNCS	1.03	1.76	<b>1.18</b>
MNJS	1.05	1.49	<b>1.14</b>

##### Collaboration profile



##### Research profile



### 3.2.36 St. George's – University of London

St. George's University of London (SGUL) was founded in 1733, and has over 5,500 students and over 800 members of staff.

#### Performance

In the performance table, we find overall output and impact of SGUL publications within the scope of this analysis. In total, this results in 4,553 publications, or 1,507 when using fractional counting. Collaboration rates are high at 90%, with 57% of publications being co-authored by at least one international author. SGUL performs above world average for all impact indicators. Notably, there is a gap between the MNCS and MNJS scores. This would suggest that SGUL publications are also impactful by the standards of the journals in which they are published.

#### Profiles

The collaboration profile breaks SGUL publications down into three groups: single institute (no collaboration), national and international collaboration. As we saw, international is the majority group, whereas single institute is a small part of the total output. For impact, the PP[top20%] indicator shows a common pattern, with international outperforming national which in turn outperforms single institute. On MNCS, however, the difference between single institute and national is very small. This could be due to outliers, which have a stronger effect on MNCS than on PP[top20%].

Finally, the research profile lists the top 25 WoS subject categories for SGUL publications by output. Clear standouts in terms of total output are *Cardiac & Cardiovascular Systems* and *General & Internal Medicine* (note that while *Multi-disciplinary Sciences* ranks third for full counting, other categories such as *Pharmacology & Pharmacy*, *Peripheral Vascular Disease* and *Surgery* actually outrank it for fractional counting). These categories also have high impact. For the former, the most frequent journal within the category, *European Heart Journal* (P: 64, MNCS: 7.36, PP[top20%]: 0.82), boosts impact. For the latter, the most frequent journal, *BMJ Open* (P: 79, MNCS: 0.82, PP[top20%]: 0.19), actually performs below SGUL (and even world) average. This deficit is made up by other, less frequent journals with high impact such as *Lancet* (P: 29, MNCS: 13.69) and *New England Journal of Medicine* (P: 15, MNCS: 19.21).

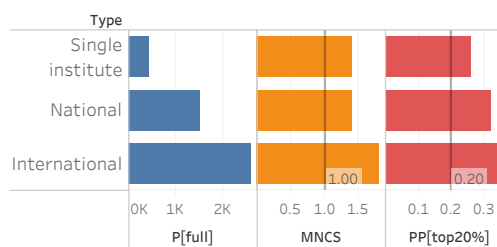
## St George's, University of London

Bibliometric performance and profiles of the biomedical & health research

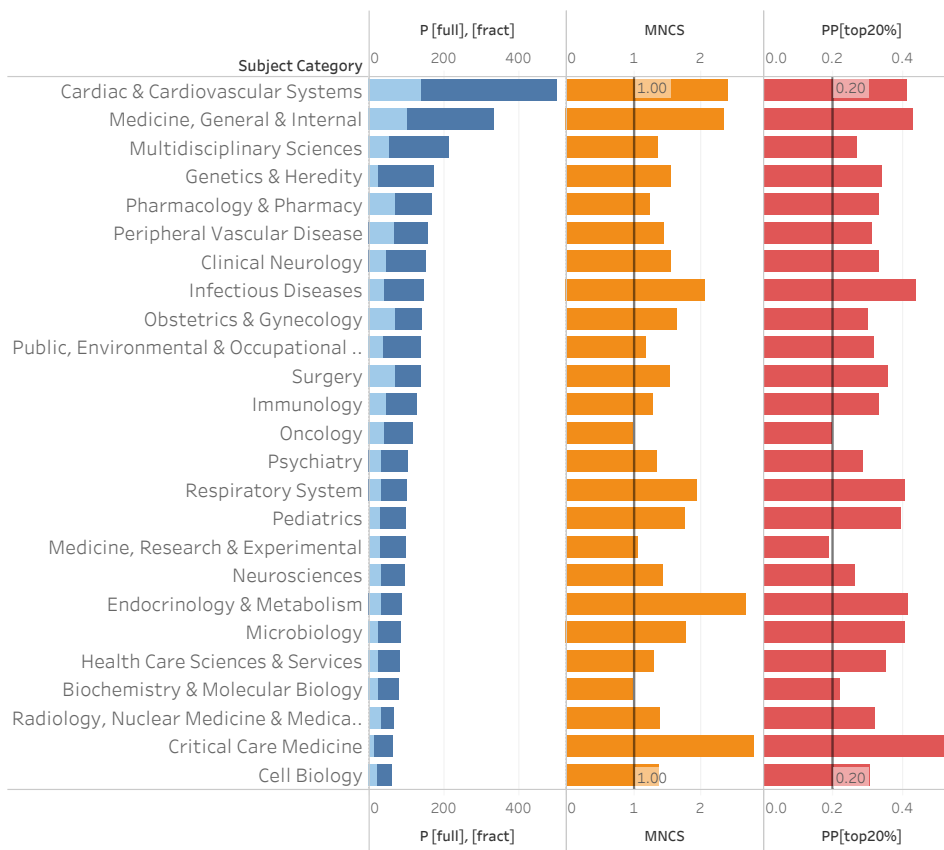
### Performance

	Article	Review	Overall
P[full]	3,780	773	<b>4,553</b>
P[fract]	1,201	306	<b>1,507</b>
PP[collab]	0.91	0.86	<b>0.90</b>
PP[int collab]	0.58	0.53	<b>0.57</b>
TCS	64,511	12,302	<b>76,813</b>
P[top20%]	1,342	413	<b>1,755</b>
PP[top20%]	0.28	0.48	<b>0.32</b>
MNCS	1.41	2.14	<b>1.56</b>
MNJS	1.30	1.70	<b>1.38</b>

### Collaboration profile



### Research profile



### 3.2.37 St. George's University Hospitals NHS Foundation Trust

St. George's University Hospitals NHS Foundation Trust (SGUH) is a NHS foundation trust with over 9,000 staff members, and is primarily responsible for managing the St. George's Hospital in Tooting.

#### Performance

In the performance table we can find overall output and impact indicators for SGUH publications within the selected Web of Science categories used in this study. This amounts to a total of 2,890 publications using full counting, or 1,072 using fractional counting (a relative contribution in number of authors on publications of 37%). SGUH publications are produced in collaboration with at least one author outside of the trust in 85% of cases, and in 44% of cases with an author with an international affiliation. For reviews, collaboration proportions are typically lower, and we see this for SGUH as well. On the impact indicators, SGUH performs above world average on all counts, even slightly better for MNCS than MNJS.

#### Profiles

In the collaboration profile, SGUH publications are broken down by collaboration type: single institute (no collaboration), national and international. As we saw in the performance table, the vast majority of publications are done in collaboration, with slightly more being co-authored internationally than nationally. Impact-wise, we see that single-institute publications perform on or around world average, with the MNCS indicator sitting just above and the PP[top20%] just below the world average mark. International outperforms national collaboration, which is something we see for most units of analysis in the study.

Finally, in the research profile, we list the top 25 subject categories in which SGUH publications are classified. For SGUH, *Surgery* is the clear number one when it comes to research output (by which they are sorted), a difference that becomes even clearer when looking at the fractional research output, which is almost double that of the second-highest category. However, the impact indicators for *Surgery* fall below SGUH's overall performance. *Critical Care* performs best of the high-output categories. Lower down the list we see a few smaller categories perform well, for instance *Hematology* and *Endocrinology & Metabolism*, which perform more than a 100% above world average. However, we have to be careful drawing conclusions based on small publication sets.



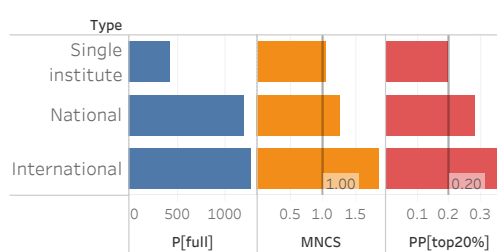
### St George's University Hospitals NHS Foundation Trust

#### Bibliometric performance and profiles of the biomedical & health research

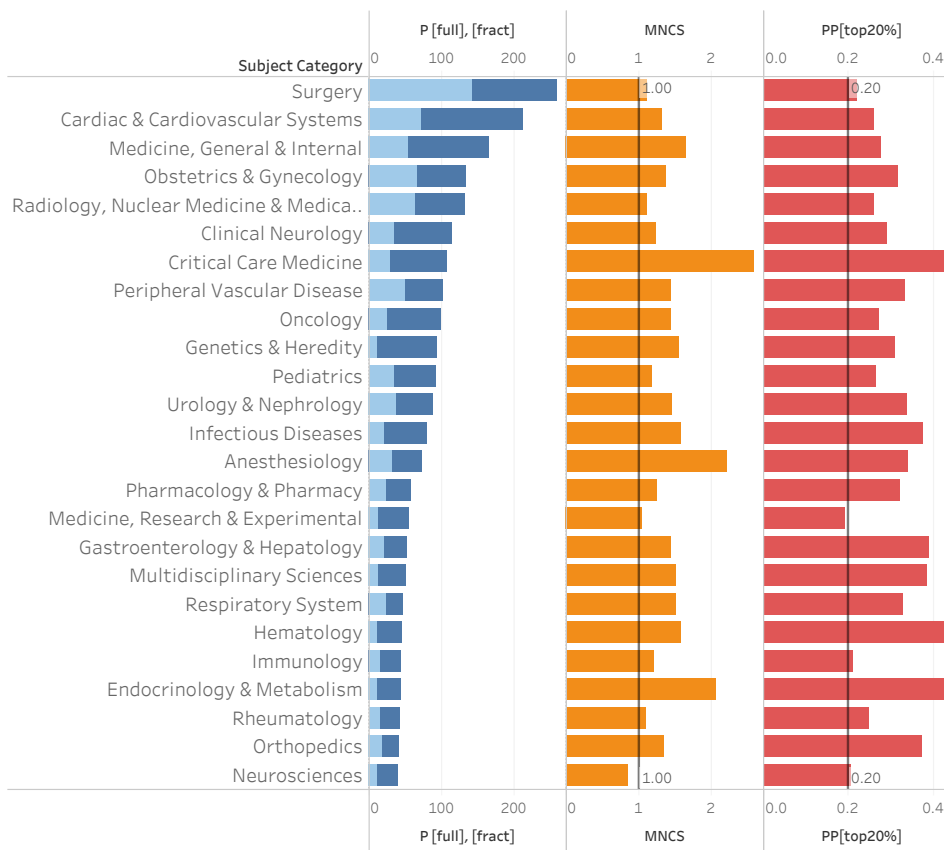
#### Performance

	Article	Review	Overall
P[full]	2,333	557	<b>2,890</b>
P[fract]	838	234	<b>1,072</b>
PP[collab]	0.86	0.83	<b>0.85</b>
PP[int collab]	0.45	0.39	<b>0.44</b>
TCS	33,627	7,314	<b>40,941</b>
P[top20%]	770	256	<b>1,027</b>
PP[top20%]	0.24	0.39	<b>0.27</b>
MNCS	1.18	1.78	<b>1.31</b>
MNJS	1.13	1.31	<b>1.17</b>

#### Collaboration profile



#### Research profile



### 3.2.38 University of Bath

The University of Bath (UoB) is a public research university in Somerset, England. It currently has 18,868 students enrolled.

#### Performance

The performance table lists the overall performance of UoB publications within the selected scope of the study. There are a few observations that can be made. The first four rows of the table give an initial insight into the collaboration practices of UoB. The difference between the P[full] and P[fract], as well as the proportions for PP[collab] and PP[int collab], show that UoB collaborates extensively, also across country borders. Just over half of the university's output is produced in international collaboration.

For the impact indicators, we see that UoB performs above world average for both PP[top20%] and MNCS. Performance is particularly high on reviews, with more than double the impact on both indicators.

#### Profiles

As mentioned above, UoB collaborates extensively. The collaboration profile gives more insight into how UoB's performance breaks down by collaboration type. The pattern we see in this graph is a common one, with international outperforming national collaboration, which in turn outperforms single-institute publications. Yet the difference is relatively small, and even single-institute publications perform above world average on both impact indicators. This graph also confirms once more the extent of UoB's collaboration practices, with non-collaboration output being significantly lower than the other two categories.

Finally, the research profile highlights output and impact on the 25 Web of Science subject categories with the highest UoB output. It is relatively common for university research profiles to see *Multidisciplinary Sciences* at the top in this graph. A large part of this output (roughly 42%) consists of *PLoS ONE* publications. Impact Performance is high on *General & Internal Medicine*, *Sport Sciences*, *Rheumatology*, to mention the categories with 80 publications or more.

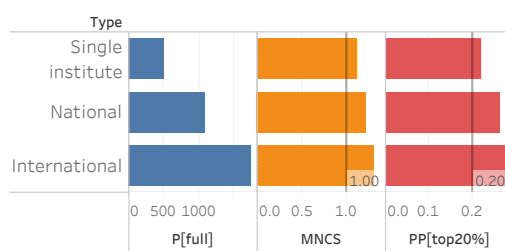
## University of Bath

## Bibliometric performance and profiles of the biomedical &amp; health research

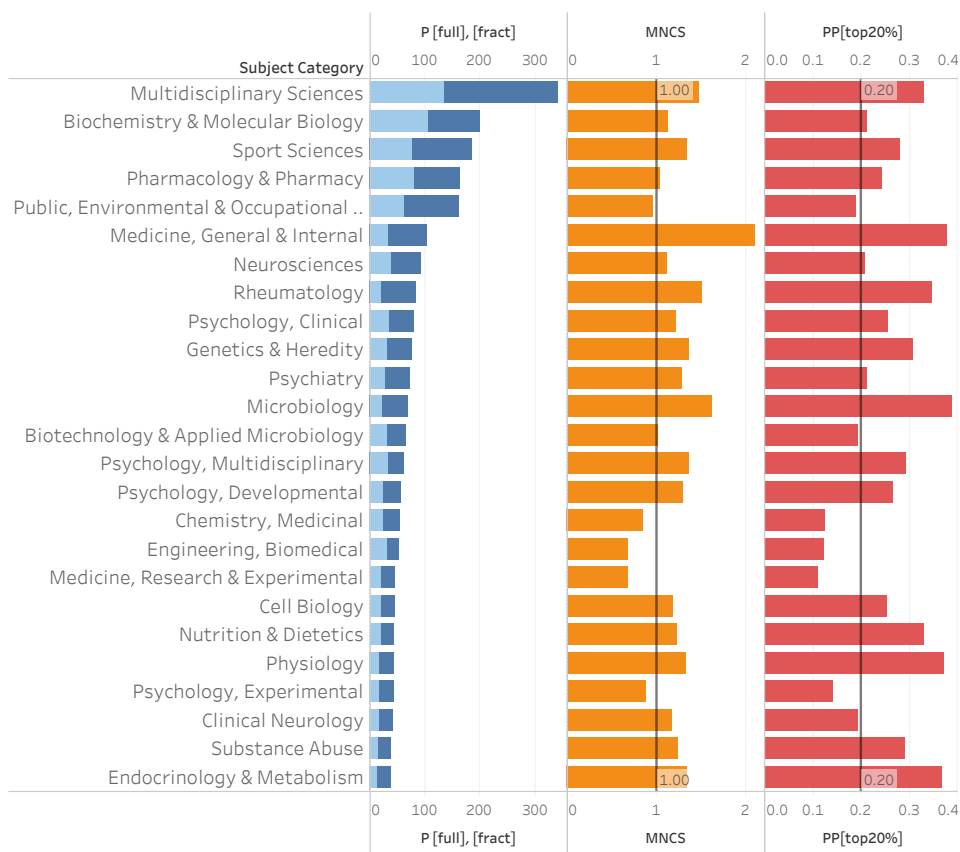
## Performance

	Article	Review	Overall
P[full]	3,045	325	<b>3,370</b>
P[fract]	1,292	151	<b>1,443</b>
PP[collab]	0.85	0.80	<b>0.85</b>
PP[int collab]	0.52	0.49	<b>0.52</b>
TCS	28,771	5,510	<b>34,281</b>
P[top20%]	791	183	<b>974</b>
PP[top20%]	0.22	0.55	<b>0.25</b>
MNCS	1.07	2.48	<b>1.22</b>
MNJS	1.10	1.97	<b>1.19</b>

## Collaboration profile



## Research profile



### 3.2.39 University of Birmingham

The University of Birmingham (UBir), founded in 1900, is a public research university with approximately 30,000 enrolled students as well as 7,000 staff members.

#### Performance

The performance table shows the overall output and impact indicators for the UBir within the scope of the study. In it we can observe some regular patterns for a university of this kind: frequent collaboration (stronger on articles than on reviews) and impact measures that lie reliably above world average (and are also, as is common, even higher for reviews).

#### Profiles

The collaboration profile shows output and impact measures broken down by collaboration type. As we could already discern in the overall performance table, more than half of the publications are produced in international collaboration. We can also see that international collaboration output outperforms national collaboration, which in turn outperforms non-collaborative output. The pattern is stable for both impact measures, reaching up to a MNCS of 1.61 (or 61% above world average) and a PP[top20%] of 0.33 (or 65% above world average) for international collaboration. Apart from those highs, all other impact measures, including those for non-collaboration, are also above world average.

In the research profile, listing the top 25 subject categories for UBir, we note high output numbers for *General & Internal Medicine* and *Cardiac & Cardiovascular Systems*. At the top is *Multidisciplinary Sciences*, which is something we commonly observe for universities in this analysis, and is in part helped by the journal *PloS ONE* featuring 532 times – or roughly half of the category's publication output. Impact measures are high for *General & Internal Medicine*, *Endocrinology & Metabolism*, *Gastroenterology & Hepatology*, and *Rheumatology*, among others.

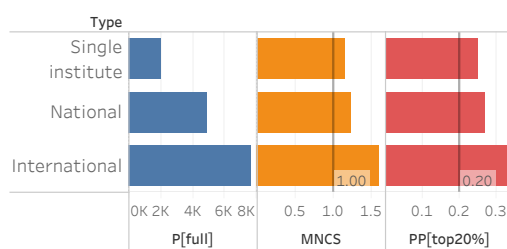
## University of Birmingham

## Bibliometric performance and profiles of the biomedical &amp; health research

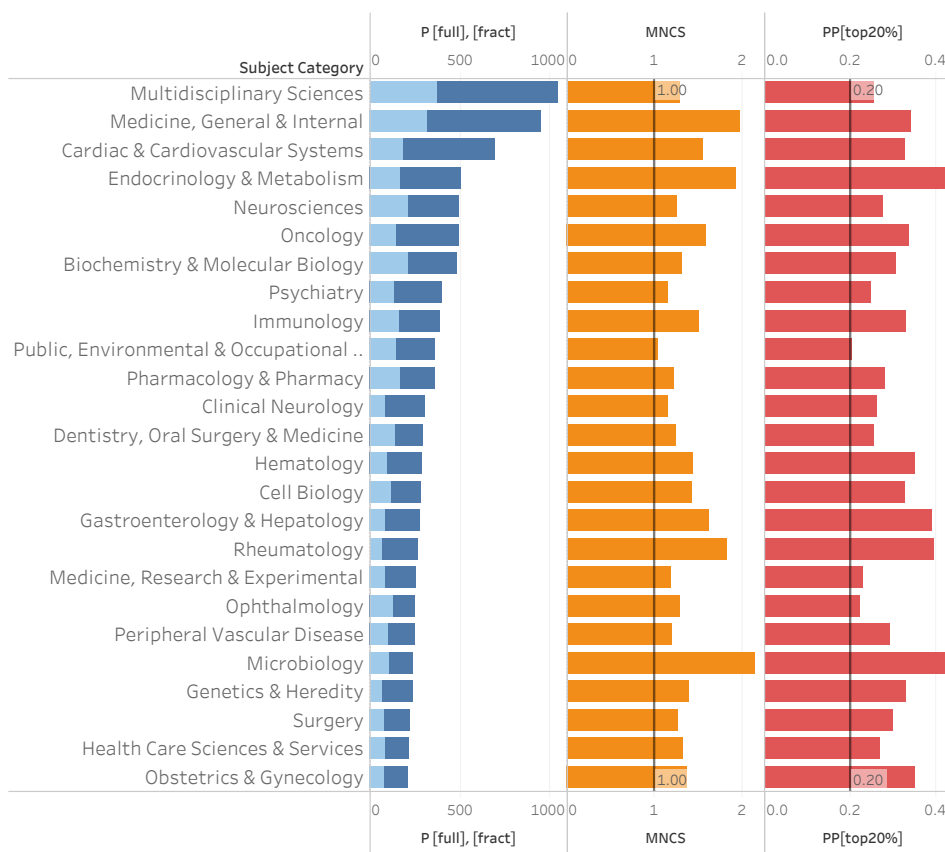
## Performance

	Article	Review	Overall
P[full]	12,515	2,091	<b>14,606</b>
P[fract]	4,772	966	<b>5,738</b>
PP[collab]	0.87	0.79	<b>0.86</b>
PP[int collab]	0.54	0.44	<b>0.53</b>
TCS	152,259	37,891	<b>190,150</b>
P[top20%]	3,775	1,045	<b>4,820</b>
PP[top20%]	0.25	0.46	<b>0.28</b>
MNCS	1.18	2.10	<b>1.34</b>
MNJS	1.19	1.70	<b>1.28</b>

## Collaboration profile



## Research profile



### 3.2.40 University of Brighton

The University of Brighton (UoB) was founded in 1859 and at the time of writing has 19,000 enrolled students as well as 2,600 staff members.

#### Performance

The performance table shows the university's overall performance in output and impact indicators within the selected Web of Science subject categories. We can observe that UoB researchers contributed to 2,310 publications within the data set, of which almost 2,000 are articles. From the difference between the  $P[\text{full}]$  and  $P[\text{fract}]$ , as well as in the  $PP[\text{collab}]$  indicator, we get a sense of the collaborative practices of the university's researchers. These proportions of collaboration are largely in line with what we see for other universities. For the  $PP[\text{top20\%}]$ , it is worth noting that overall performance is 0.03 (or 3%) above world average, but if we look only at the articles, UoB falls just below this average. Also for the MNCS and MNJS, articles fall just below world average. Reviews lift the overall impact to just above (7 and 8%, respectively).

#### Profiles

The collaboration indicators in the performance table are broken down in the collaboration profile. We can immediately observe that the number of publications that are produced without any collaboration outside of the university make up only a small part of the total publication set (10%). The graph also shows that the majority of publications are produced in international collaboration, and that those publications outperform both other categories. Furthermore, single institute is the only category to perform under world average for both impact indicators.

In the research profile, the top 25 Web of Science subject categories for UoB publications are listed. Publication in *Multidisciplinary Sciences* journals are at the top, which is largely due to the *PLoS ONE* journal, taking up 91 out of the 143 publications in this category (almost two-thirds of output). Three other categories stand out with regard to output: *General & Internal Medicine*, *Neurosciences* and *Public, Environmental & Occupational Health*. The first of these three performs best on the impact indicators. This is partly thanks to the 28 Lancet publications in this category here, which boast an MNCS of 12.55 and a  $PP[\text{top20\%}]$  of 0.73. We do not encounter such substantial (in output and impact) publication sets for specific journals in other categories with large output. In the remaining subject categories, we see a particularly strong performance on impact for *Oncology*, *Radiology*, *Nuclear Medicine & Medical Imaging*, *Cell Biology*, and *Respiratory System*. In all these cases, there are no clear signs that one or two publications and/or journals distort the view: they seem to perform well in general.

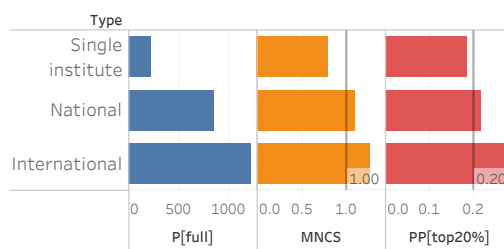
## University of Brighton

## Bibliometric performance and profiles of the biomedical &amp; health research

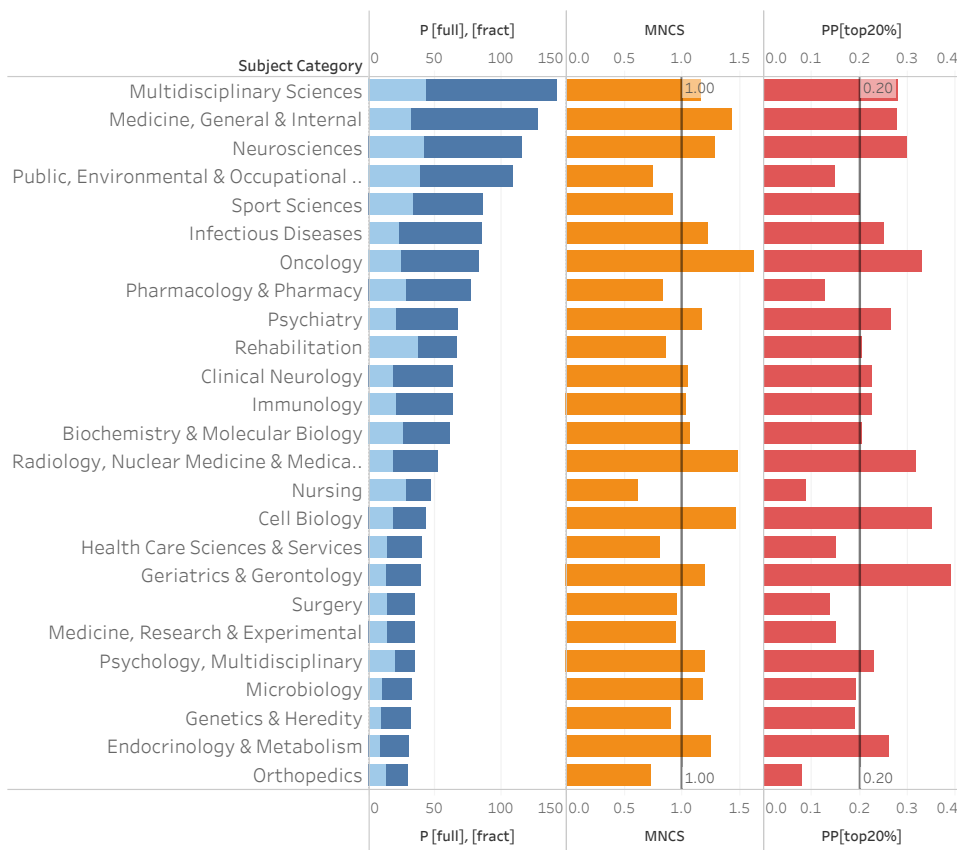
## Performance

	Article	Review	Overall
P[full]	1,993	317	<b>2,310</b>
P[fract]	712	127	<b>839</b>
PP[collab]	0.90	0.87	<b>0.90</b>
PP[int collab]	0.53	0.55	<b>0.53</b>
TCS	24,775	5,687	<b>30,462</b>
P[top20%]	493	146	<b>639</b>
PP[top20%]	0.19	0.44	<b>0.23</b>
MNCS	0.96	1.69	<b>1.07</b>
MNJS	0.99	1.59	<b>1.08</b>

## Collaboration profile



## Research profile



### 3.2.41 University of Bristol

The University of Bristol (UoB), founded in 1876, currently has a total of 29,356 students and 7,912 staff members.

#### Performance

The performance table shows overall performance output and impact indicators for UoB publications within the scope of this study. This comes to a total of 13,613 publications, or 5,339 when using fractional counting. Comparing the numbers for full and fractional gives an insight into relative contribution and average author numbers, showing us that reviews average around 2 authors, whereas articles average over 2.5. In the PP[collab] and PP[int collab], we can see that 86% of UoB publications are produced in collaboration with someone outside of the university, and 51% are produced outside of the United Kingdom. All impact measures are above world average, with reviews for all indicators clearly outperforming articles. MNCS is significantly higher than MNJS for reviews, suggesting that UoB reviews perform well even by the standards of the journals they are placed in.

#### Profiles

The collaboration profile breaks collaboration practices down into three groups, distinguishing non-collaboration (single institute) from national and international collaboration. As we saw, single institute only makes up a small part of the whole set, with the majority of publications in international. All categories clearly perform above world average for both MNCS and PP[top20%]. Nevertheless, we still see a common pattern for collaboration profiles in this study, with international outperforming the other two, and national outperforming single institute.

The research profile lists the top subject categories for UoB publications by output. At the top is *Multidisciplinary Sciences*, a common sight for universities in this study. This is largely because of the dominance of publications in journals like *PLoS ONE* (P: 679, MNCS: 1.2, PP[top20%]: 0.2) and *Scientific Reports* (P: 238, MNCS: 1.0, PP[top20%]: 0.2). These journals still perform around or above world average, but actually under-perform against overall UoB performance. Other high-output categories are *General & Internal Medicine*, *Public, Environmental & Occupational Health* and *Veterinary Sciences*. In *General & Internal Medicine*, *BMJ Open* constitutes a large part of the output (P: 297). Impact for UoB publications in this journal is on or around world average. Nevertheless, category impact remains high, boosted by some other journals here, such as *The Lancet* (P: 80, MNCS: 12.8, PP[top20%]: 0.9).



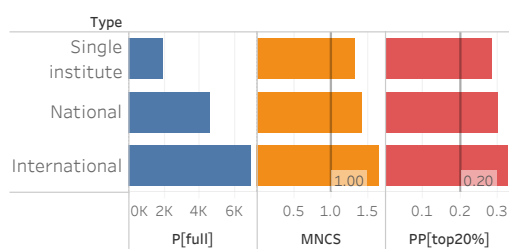
## University of Bristol

### Bibliometric performance and profiles of the biomedical & health research

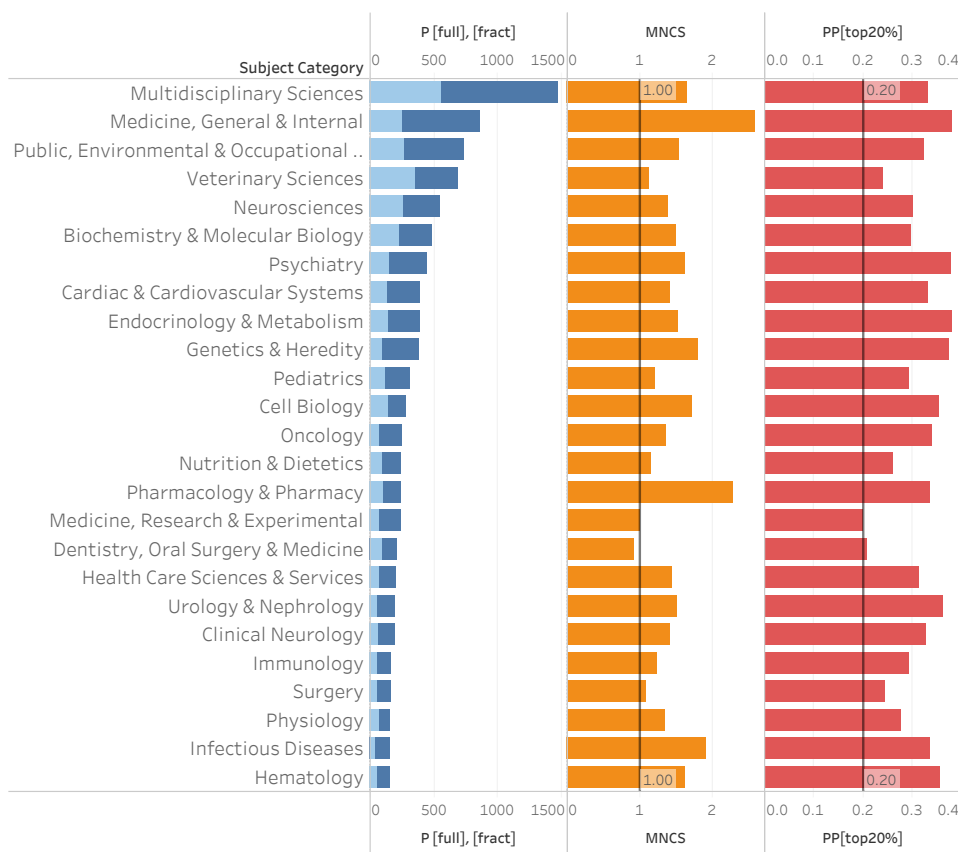
#### Performance

	Article	Review	Overall
P[full]	12,062	1,551	<b>13,613</b>
P[fract]	4,636	702	<b>5,338</b>
PP[collab]	0.87	0.78	<b>0.86</b>
PP[int collab]	0.52	0.45	<b>0.51</b>
TCS	158,775	33,669	<b>192,444</b>
P[top20%]	3,916	863	<b>4,778</b>
PP[top20%]	0.27	0.51	<b>0.31</b>
MNCS	1.32	2.39	<b>1.46</b>
MNJS	1.31	1.83	<b>1.38</b>

#### Collaboration profile



#### Research profile



### 3.2.42 University of Cambridge

The University of Cambridge (UC) was founded in 1209, and currently has 23,380 students and 11,528 staff members.

#### Performance

The performance table lists overall UC output and impact within the selected Web of Science subject categories. For this data set, UC has a total of 28,655 publications, or 10,787 using fractional counting, meaning that UC contributes on average over a third to these publications (in terms of number of authors). UC collaborates on 86% of its publications, and internationally on 64% of its publications. On the impact indicators, UC performs above world average on all facets, and at least 50% above world average overall for all three indicators. MNCS scores are higher than MNJS, suggesting that UC publications also perform above average by the standards of the journals they are published in.

#### Profiles

The collaboration profile breaks down UC publications into three types: only UC researchers (single institute), only national collaborations, and co-authored internationally. While we do see a majority part for international on other units of analysis, the majority is larger here. What is also different from the average collaboration profile is that single institute impact here actually outperforms national. All impact indicators here are above world average (ranging between 64 and 87% above).

Finally, the research profile lists the top 25 subject categories in terms of UC output. The prominence of *Multidisciplinary Sciences* is common among units of analysis here and can be explained by a number of prolific journals housed in this category. *PLoS ONE* alone accounts for 1300 publications, while *Proceedings of the National Academy of Sciences*, *Scientific Reports* and *Nature Communications* all have over 500 publications as well. In contrast, for the other subject categories, no single journal crosses the threshold of 250 publications. Subject categories that perform comparatively well on impact indicators are *Cell Biology*, *General & Internal Medicine* and *Cardiac & Cardiovascular Systems*, among others. For *Cell Biology*, performance is strong all around but is boosted by the publications in *Cell* (P: 60, MNCS: 6.99) and *Nature Cell Biology* (P: 61, MNCS: 4.13). *General & Internal Medicine* gets a strong boost by *Lancet* (P: 119, MNCS: 12.32), while for *Cardiac & Cardiovascular Systems* the most cited journals in the category with 34 publications, *Journal of the American College of Cardiology*, boosts performance with an MNCS of 6.80. Except for the impact for *Veterinary Sciences* which is just short of the mark, all subject categories perform above world average.

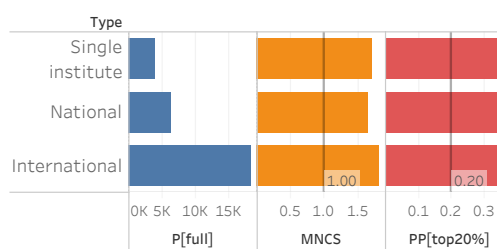
## University of Cambridge

## Bibliometric performance and profiles of the biomedical &amp; health research

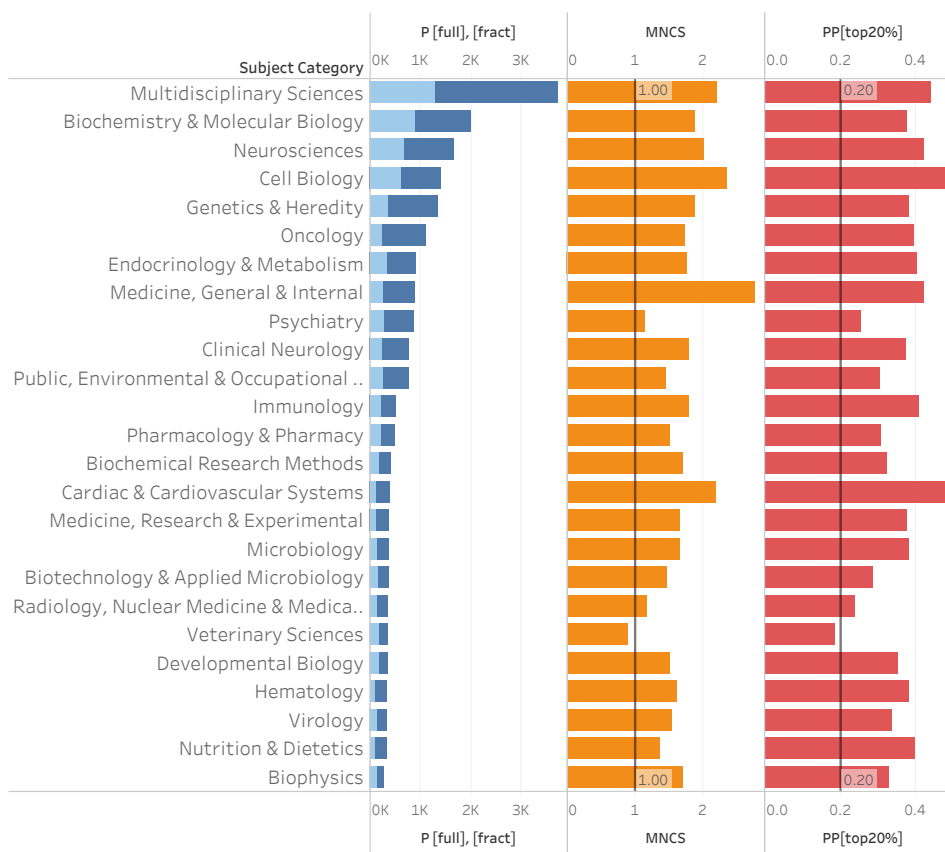
## Performance

	Article	Review	Overall
P[full]	25,329	3,326	<b>28,655</b>
P[fract]	9,088	1,697	<b>10,786</b>
PP[collab]	0.88	0.73	<b>0.86</b>
PP[int collab]	0.66	0.50	<b>0.64</b>
TCS	431,691	90,166	<b>521,857</b>
P[top20%]	9,562	1,880	<b>11,441</b>
PP[top20%]	0.33	0.53	<b>0.36</b>
MNCS	1.55	2.78	<b>1.74</b>
MNJS	1.49	2.28	<b>1.61</b>

## Collaboration profile



## Research profile



### 3.2.43 University College London

University College London (UCL) was founded in 1826, and currently has over 42,000 students and 13,000 staff from 150 different countries.

#### Performance

The performance table lists overall output and impact indicators for UCL publications which fall within the scope of this study. This amounts to a total of 47,143 publications, or 16,766 using fractional counting (making the average UCL contribution here, in terms of number of authors, just over a third). 89% of publications are produced in collaboration with one or more non-UCL authors, and 61% are produced in international collaboration. This is slightly higher than we tend to see for other universities. The impact indicators show a performance that is clearly above world average. MNCS and MNJS scores are comparable for articles, yet are somewhat further apart for reviews, suggesting that reviews in particular perform better than average even by the chosen journals' standards.

#### Profiles

The collaboration profile breaks publications down by type of collaboration: single institute (only UCL), national and international. As the performance table shows, international collaboration makes up the majority. Generally, we see national collaboration outperforming single institute on impact, but for UCL this is not true, suggesting that contributions from UCL researchers are relatively strong. International collaboration does outperform the other two categories on impact, but the difference is less stark than it is for some other units of analysis in this study.

In the research profile, the top 25 subject categories for UCL publications in the data set are listed. We find *Multidisciplinary Sciences* at the top, something common for universities in this analysis, and is largely caused by a few journals in this category being very prominent (*PLoS ONE*, with P: 1,907). Other than that, the prevalence of *Neurosciences* publications for UCL is notable. As for impact, *General & Internal Medicine* performs strongly (particularly on MNCS). There are some journals in this category with very high impact, including *The Lancet* (250 publications, MNCS: 12.80) and *New England Journal of Medicine* (P: 102, MNCS: 17.31). Two other categories with high impact are *Cell Biology* and *Cardiac & Cardiovascular Systems*, with impact here particularly high on PP[top20%]. The top journals for these categories, *Cell Reports* and *Heart* respectively, perform well on MNCS (roughly 100% above world average), but even better on PP[top20%] (roughly 200% above world average). The PP[top20%] indicator tends to be more robust (less susceptible to outliers) than the MNCS, so a better performance there would suggest that these categories perform well across the board.

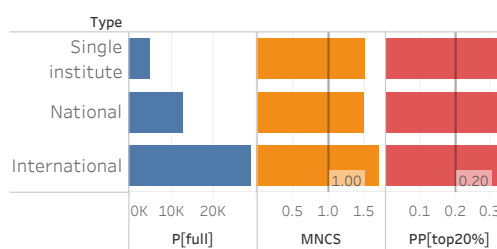
## University College London

## Bibliometric performance and profiles of the biomedical &amp; health research

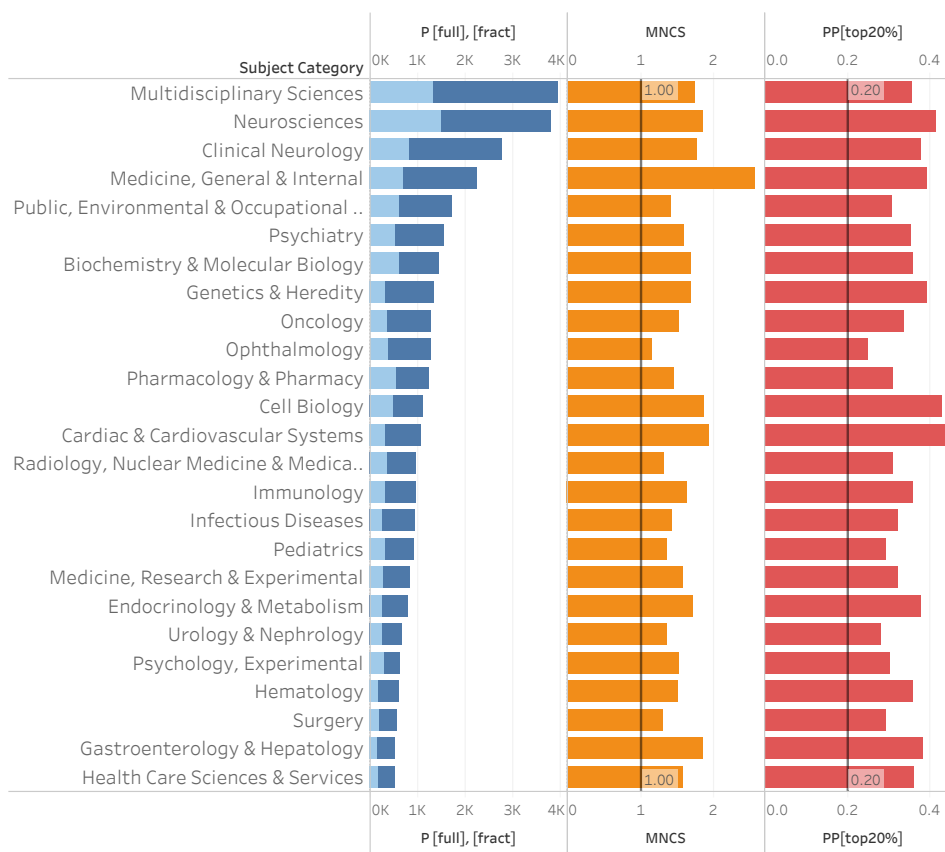
## Performance

	Article	Review	Overall
P[full]	40,596	6,547	<b>47,143</b>
P[fract]	13,954	2,813	<b>16,767</b>
PP[collab]	0.90	0.82	<b>0.89</b>
PP[int collab]	0.63	0.54	<b>0.61</b>
TCS	550,033	140,562	<b>690,595</b>
P[top20%]	14,077	3,542	<b>17,619</b>
PP[top20%]	0.30	0.52	<b>0.34</b>
MNCS	1.40	2.49	<b>1.59</b>
MNJS	1.38	2.02	<b>1.49</b>

## Collaboration profile



## Research profile



### 3.2.44 University of East Anglia

The University of East Anglia (UEA), established in 1963, has a student population of 16,872 and a staff count of 3,712.

#### Performance

The performance table shows overall performance for UEA publications within the scope of the study. We can see that roughly 87% (full counting), or 85% (fractional counting) of the publications included are articles, the remainder being reviews. The stark difference between full and fractional counting numbers gives us an idea of the strong collaborative practices of the UEA. This is further confirmed by the PP[collab] and PP[int collab], showing that 90% of publications are produced in extra-university collaboration, and roughly half are produced in international collaboration. Finally, the last three rows of the table give a general idea of the impact of UEA publications overall. The PP[top20%] indicators are more than 50% above world average. Similarly, the MNCS and MNJS are also clearly (43%) above world average.

#### Profiles

The collaboration profile breaks down UEA publications by collaboration type, distinguishing between single institute (no collaboration) and national and international collaboration. Publication output is highest for international collaboration. For impact we see a common pattern, with international outperforming national which in turn outperforms single institute. For the latter, UEA still performs above world average on impact, and is actually rather close to the collaborative MNCS impact. Since this difference between single institute and national is larger for the PP[top20%], it might be influenced by outliers.

Finally, in the research profile, we see the top 25 WoS subject categories as ranked by (full-counting) publication output. The top field is *Multidisciplinary Sciences*, followed by *General & Internal Medicine*. There are also sizeable ( $P > 200$ ) outputs for *Biochemistry & Molecular Biology*, *Public, Environmental & Occupational Health*, *Nutrition & Dietetics* and *Microbiology*. If we use fractional counting, we see that *Biochemistry & Molecular Biology* has higher output than *General & Internal Medicine*, suggesting that in publications of the former UEA's contribution was, on average, larger. Impact is high for *General & Internal Medicine*, but also for lower-output categories such as *Cardiac & Cardiovascular Systems*, *Rheumatology*, *Geriatrics & Gerontology*, *Genetics & Heredity*, and *Infectious Diseases* and *Gastroenterology & Hepatology*.

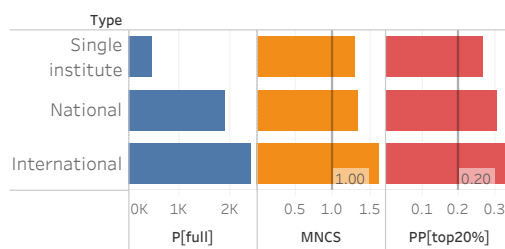
## University of East Anglia

## Bibliometric performance and profiles of the biomedical &amp; health research

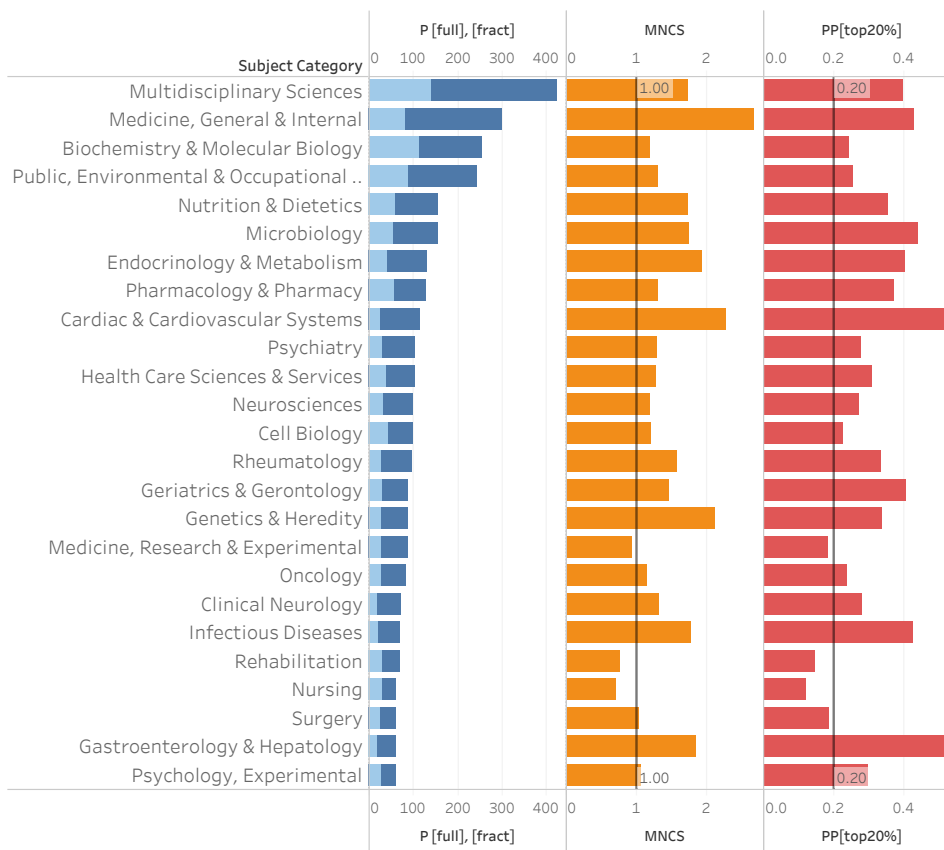
## Performance

	Article	Review	Overall
P[full]	4,151	634	<b>4,785</b>
P[fract]	1,459	268	<b>1,726</b>
PP[collab]	0.91	0.84	<b>0.90</b>
PP[int collab]	0.52	0.41	<b>0.51</b>
TCS	54,376	13,407	<b>67,783</b>
P[top20%]	1,294	357	<b>1,651</b>
PP[top20%]	0.26	0.54	<b>0.31</b>
MNCS	1.24	2.45	<b>1.43</b>
MNJS	1.27	1.92	<b>1.37</b>

## Collaboration profile



## Research profile



### 3.2.45 University of East London

The University of East London (UEL) was founded in 1898, has 1,500 staff members and 13,395 students (as of the year 2018/2019).

#### Performance

The performance table shows the overall numbers for UEL publications in the selected Web of Science subject categories used in this analysis. This amounts to a total number of 3,644 publications, of which 305 are reviews. Using fractional counting, the number is reduced to 1,528, meaning that, considered by number of authors, UEL contributes roughly 42% on average to the publications counted here. UEL collaborates with at least one non-UEA author on 87% of its publications, and collaborates with at least one international author in 45% of the cases. This international collaboration is slightly lower than most universities in this analysis, which tend to have a majority of international publications. On all impact indicators, UEL performs above world average, 25%, 21% and 18% above the norm respectively for PP[top20%], MNCS and MNJS. The fact that MNCS and MNJS numbers are comparable suggests that UEL publications perform normatively with respect to the journals they are published in.

#### Profiles

In the collaboration profile, UEL publications are divided among three categories: single institute (no collaboration), national and international collaboration. As could be seen in the performance table, single institute comprises only a small proportion of publications, while international collaboration output is slightly higher than national. For all categories, impact indicators are above world average, yet we see clear differences, with international outperforming national, which in turn outperforms single institute. This is a relatively common pattern among units of analysis.

In the research profile, we see that UEL publications are often found in *Psychiatry*, *Psychology* and *Neurosciences* journals, while impact is slightly higher in the consequent three subject categories, *Multidisciplinary Sciences*, *Clinical Neurology* and *Behavioral Sciences*. It should be noted that from *Substance abuse* onward, one should be careful interpreting the impact indicators for these categories, given that the number of publications becomes so low that one or two outliers can strongly influence the score.



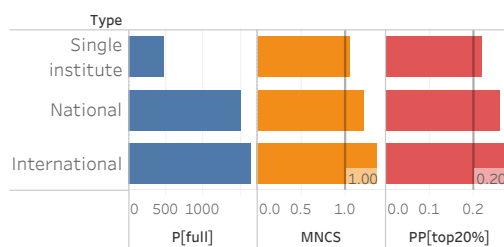
## University of East London

## Bibliometric performance and profiles of the biomedical &amp; health research

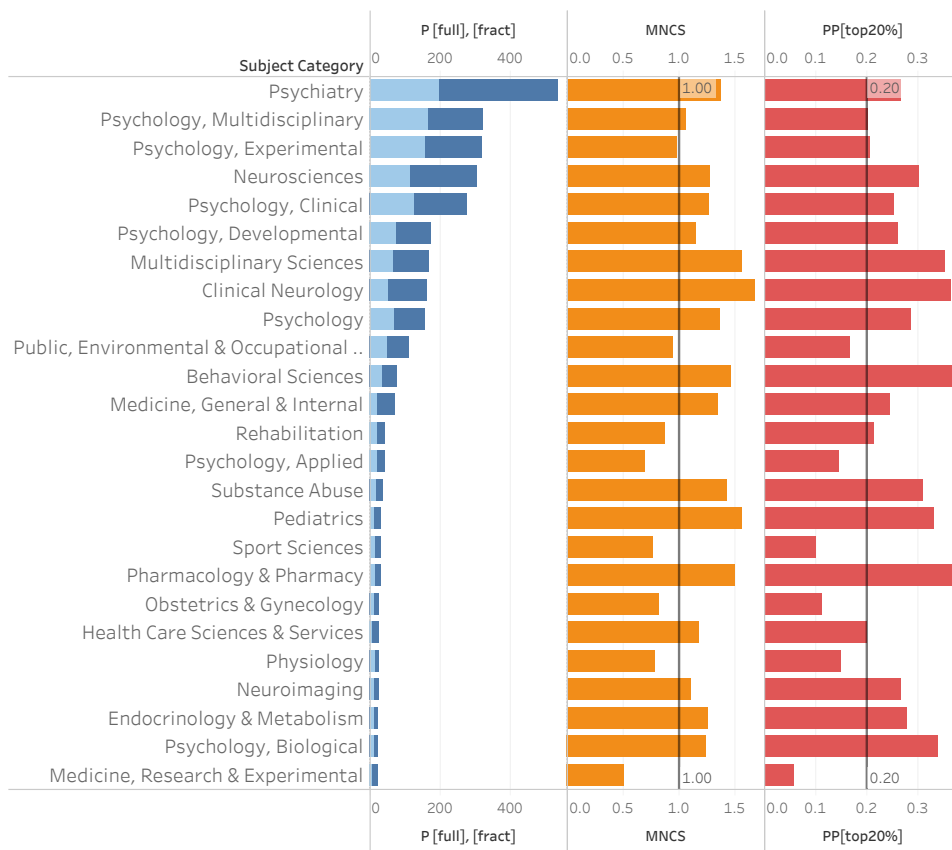
## Performance

	Article	Review	Overall
P[full]	3,340	304	<b>3,644</b>
P[fract]	1,397	131	<b>1,528</b>
PP[collab]	0.87	0.84	<b>0.87</b>
PP[int collab]	0.45	0.42	<b>0.45</b>
TCS	24,773	5,404	<b>30,177</b>
P[top20%]	839	170	<b>1,009</b>
PP[top20%]	0.23	0.50	<b>0.25</b>
MNCS	1.10	2.33	<b>1.21</b>
MNJS	1.12	1.77	<b>1.18</b>

## Collaboration profile



## Research profile



### 3.2.46 University of Exeter

The University of Exeter (UoE) was founded in 1851 and achieved full university status in 1955. It has over 25,000 students.

#### Performance

The performance table displays overall output and impact for UoE publications within the selected scope of this analysis. This amounts to a total of 6,711 publications, or 2,549 using fractional counting. This translates to an average publication contribution (in terms of proportion of authors) of roughly 38%. Clearly, then, UoE collaborates extensively, having at least one non-UoE author on 88% of its publications, as well as at least one non-UK author on 55% of publications. Collaboration is lower on reviews than on articles, which is in line with what we see for other units of analysis. Similarly, impact performance is higher for UoE reviews than articles. This difference notwithstanding, UoE performs above world average on all impact indicators. On MNCS, performance is stronger than on MNJS, which suggests that the university does well even by the standards of the journals in which its publications appear. This difference is mostly established by the impact of reviews.

#### Profiles

The collaboration profile breaks publications down into three groups: single institute (no collaboration), national and international collaboration. For output we see a common pattern, with international collaboration being the biggest group, followed by national and then single institute. On impact indicators, however, single-institute outperforms national collaboration, which is less common.

At the top of the research profile, by a significant margin, is *Multidisciplinary Sciences*. This is primarily caused by a few prominent journals taking up a large share of the output, in particular *PLoS ONE* (P: 307) and *Scientific Reports* (P: 158). For both this category and *General & Internal Medicine*, impact is relatively high compared to some of the other categories. Other categories with substantial output and impact are *Endocrinology & Metabolism*, *Sport Sciences* and *Genetics & Heredity*. Lower down the list, we see high impact for almost all categories (both by MNCS and PP[top20%]).

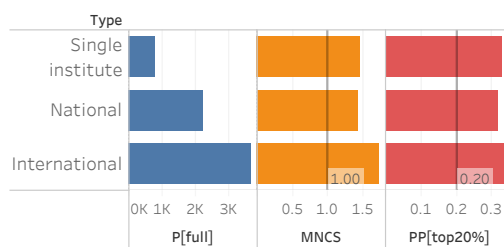
## University of Exeter

## Bibliometric performance and profiles of the biomedical &amp; health research

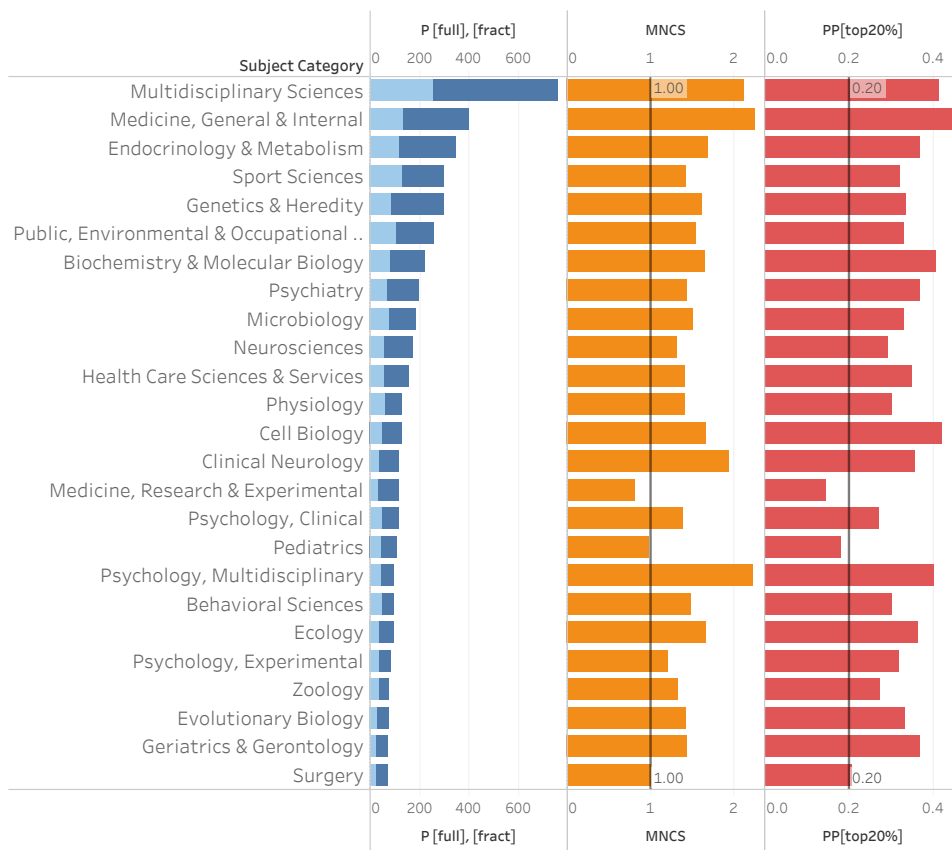
## Performance

	Article	Review	Overall
P[full]	5,864	847	<b>6,711</b>
P[fract]	2,169	380	<b>2,549</b>
PP[collab]	0.89	0.81	<b>0.88</b>
PP[int collab]	0.56	0.46	<b>0.55</b>
TCS	67,920	19,406	<b>87,326</b>
P[top20%]	1,981	486	<b>2,467</b>
PP[top20%]	0.29	0.54	<b>0.33</b>
MNCS	1.37	2.62	<b>1.56</b>
MNJS	1.33	2.09	<b>1.44</b>

## Collaboration profile



## Research profile



### 3.2.47 University of Greenwich

The University of Greenwich (UoG) was founded in 1890 and currently has a total of 18,945 enrolled students (as of 2018/2019) and 1,630 staff members (counted in FTE).

#### Performance

The performance table displays output and impact for UoG publications within the selected scope of this analysis. This amounts to a total of 2,010 publications, or 880 when using fractional counting. This means that the average author contribution from UoG (by number of authors) is roughly 44%. UoG publications are produced in collaboration with at least one non-UoG author in 83% of cases, and with at least one author with an international affiliation in 58% of cases. These collaboration rates are higher for articles than reviews. On impact, UoG performs above world average by every measure, ranging from 20% (MNJS) to 35% (PP[top20%]) above the world average. Reviews, as is common, have a higher average impact than articles.

#### Profiles

The collaboration profile breaks UoG publications down into three groups: single institute (no collaboration), national and international collaboration. As the performance table shows, the majority of publications are international. What is notably here is the high impact of single-institute publications. We tend to see international perform best on impact, followed by national, but here that trend is reversed. This might be partly due to the lower collaboration rate on reviews: reviews have a higher average impact, and would make up a larger proportion of the single-institute group than of the other two groups.

The research profile, finally, lists the top 25 Web of Science subject categories in which UoG publications are classified, ranked by full-counting publication output. Three categories clearly stand out: *Multidisciplinary Sciences*, *Pharmacology & Pharmacy* and *Biochemistry & Molecular Biology*. The latter two no doubt reflect the research interests of UoG, while the former is frequently seen topping the list for universities in this analysis, due to the inclusion of some prolific journals in this category, like *Scientific Reports* and *PLoS ONE*. The impact of *Multidisciplinary Sciences*, which is higher than the other two top categories, is among others boosted by the strong performance of publications in *Nature Communications* (50 publications, MNCS: 3.42). In the sub-top, we find *Materials Science*, *Biomaterials* with fewer publications but high impact. Further down the list we find categories with high and low impact, which should be interpreted with caution due to the small number of publications involved.

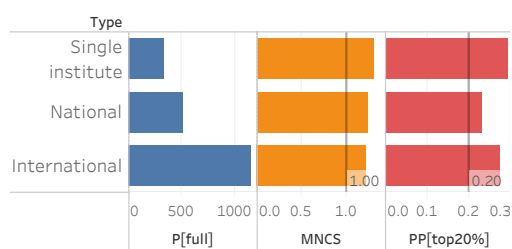
## University of Greenwich

## Bibliometric performance and profiles of the biomedical &amp; health research

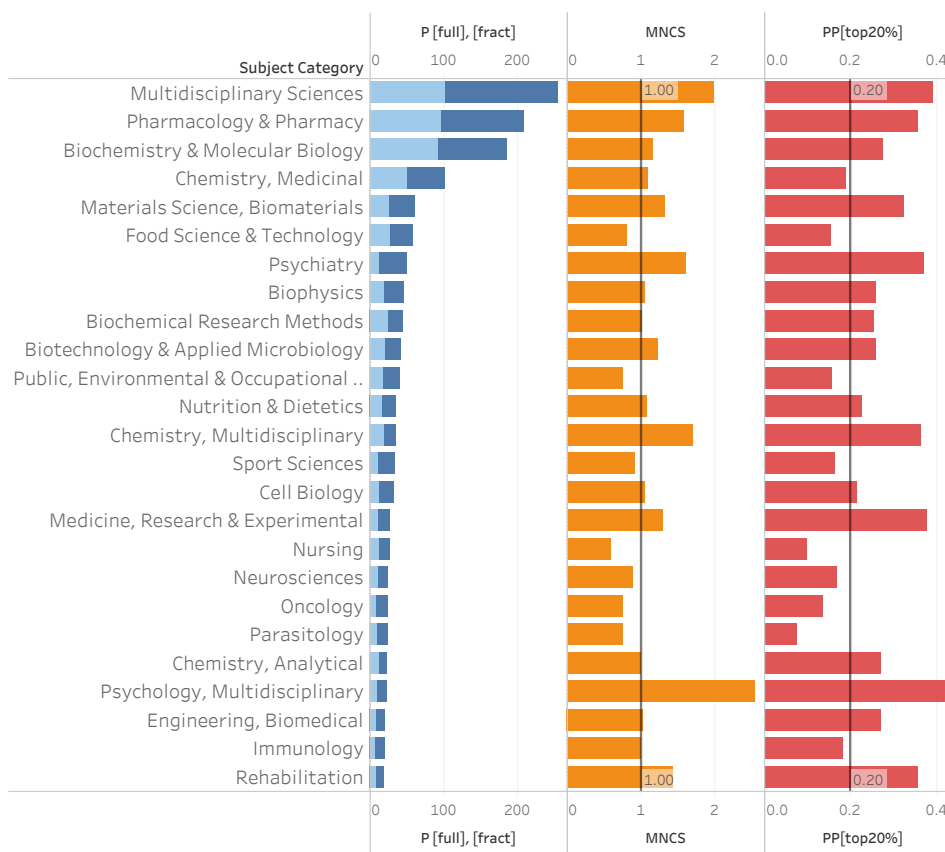
## Performance

	Article	Review	Overall
P[full]	1,786	224	2,010
P[fract]	767	113	880
PP[collab]	0.85	0.72	0.83
PP[int collab]	0.58	0.54	0.58
TCS	14,931	3,754	18,685
P[top20%]	436	125	561
PP[top20%]	0.23	0.52	0.27
MNCS	1.13	2.19	1.26
MNJS	1.11	1.75	1.20

## Collaboration profile



## Research profile



### 3.2.48 University College London Hospitals NHS Foundation Trust

University College London Hospitals NHS Foundation Trust (UCLH) is an NHS foundation trust and comprehensive biomedical centre which runs six hospitals in central London: University College Hospital, Royal London Hospital for Integrated Medicine, Royal National ENT and Eastman Dental Hospitals, National Hospital for Neurology and Neurosurgery, Institute of Sport, Exercise and Health and Hospital for Tropical Diseases.

#### Performance

The performance table lists research output and impact for UCLH publications within the scope of this study. This amounts to a total of 7,188 publications. Using fractional counting, the total comes to 2,461, meaning that the UCLH contribution (in terms of number of authors) is just over a third. Furthermore we can see that UCLH publications are co-authored by at least one outside author in 90% of cases, and by at least one author with a non-UK affiliation in half of the cases. UCLH performs above world average for all impact indicators, ranging from 34% above world average (MNJS) to 50% (PP[top20%]). Finally, reviews have lower collaboration rates and higher impact, something that we see for most units of analysis.

#### Profiles

In the collaboration profile, we break down the UCLH publications by collaboration type: single-institute (no collaboration), national and international. As we could see in the performance table, the vast majority of publications are produced in collaboration, leaving only a small group for the single-institute category. This is also the group with the lowest impact (though still above world average), with national and international performing better, and the latter performing best.

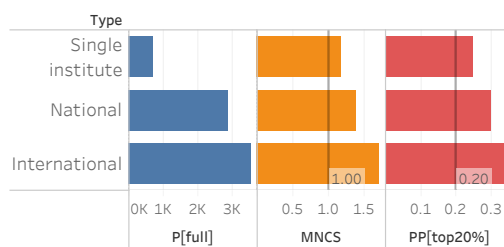
Finally, in the research profile, the top 25 subject categories are listed within which UCLH publications are classified. The list is ordered by highest research output. At the top is *Clinical Neurology*. For the second-highest category, *General & Internal Medicine*, it is worth noting that the most frequent journal in this category, *British Journal of Hospital Medicine* has 111 publications with an impact of MNCS: 0.14 and zero top 20% publications. This is strongly compensated by publications in *The Lancet* and *New England Journal of Medicine*, which with an MNCS of respectively 12.51 and 11.67 boost the category's impact. It shows that even when breaking down the data, indicators can still be driven by very diffuse data. Of the larger categories in output, the highest impact performance is found for *Cardiac & Cardiovascular Systems*. Other high impact categories, with fewer publications, are *Anesthesiology, Endocrinology & Metabolism* and *Genetics & Heredity*.

**University College London Hospitals NHS Foundation Trust**  
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## Performance

	Article	Review	Overall
P[full]	5,883	1,305	<b>7,188</b>
P[fract]	1,949	512	<b>2,461</b>
PP[collab]	0.91	0.87	<b>0.90</b>
PP[int collab]	0.50	0.46	<b>0.50</b>
TCS	70,704	21,430	<b>92,134</b>
P[top20%]	1,994	623	<b>2,617</b>
PP[top20%]	0.27	0.43	<b>0.30</b>
MNCS	1.27	2.02	<b>1.42</b>
MNJS	1.24	1.71	<b>1.34</b>

## Collaboration profile



## Research profile



### 3.2.49 University Hospital Southampton NHS Foundation Trust

University Hospital Southampton NHS Foundation Trust (UHS) is an NHS foundation trust with around 11,500 employed staff members, managing the following hospitals: Southampton General Hospital, Princess Anne Hospital, Southampton Children's Hospital, Royal South Hants, New Forest Birth Centre.

#### Performance

In the performance table we find overall output and impact for UHS within the scope of this study. This amounts to a total publication count of 4,647, or 1,458 when using fractional counting. This difference adds up to an average author contribution (in terms of number of authors) per publication of just below one-third. UHS collaborates with at least one outside author on 91% of its publications, and with at least one author with international affiliation on 51% of publications. These numbers, as is common, are lower for reviews than for articles. On all impact indicators, UHS performs above world average, ranging from 30% (MNJS) to 45% (PP[top20%]) above world average. Here, as is also common, reviews have a higher impact than articles.

#### Profiles

The collaboration profile breaks UHS publications down by collaboration type, distinguishing between single institute (no collaboration) and national and international collaboration. As the performance table showed, international makes up the majority of output, with proportionally few publications produced entirely within UHS. We also see, as is common, that international outperforms national, which in turn outperforms single institute. All categories still perform above world average on impact, though only just in the case of single institute. Collaboration seems to have a beneficial effect on UHS impact.

Finally, the research profile ranks among the top 25 subject categories for UHS publications by (full-counting) output. Note that if ranked by fractional counting the order would be different: *Endocrinology & Metabolism*, now at the top, would be surpassed by multiple categories, and *Surgery* would be at the top. This means that the relative UHS contribution to the *Surgery* publications is greater (as co-authors). No single category is dominant in terms of output. On impact, the top eight categories all perform well, particularly on PP[top20%]. On MNCS, which may more strongly be influenced by outliers, *General & Internal Medicine* does well, boosted in part by high-impact journals like *The Lancet* and *New England Journal of Medicine*. Lower down the list we mention *Rheumatology* and *Allergy*, with still a substantial number of publications and high impact.



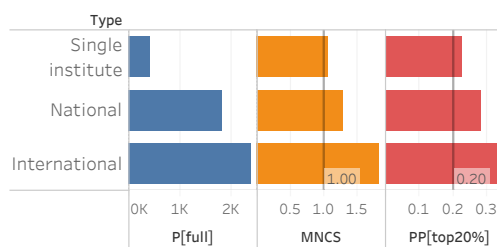
### University Hospital Southampton NHS Foundation Trust

#### Bibliometric performance and profiles of the biomedical & health research

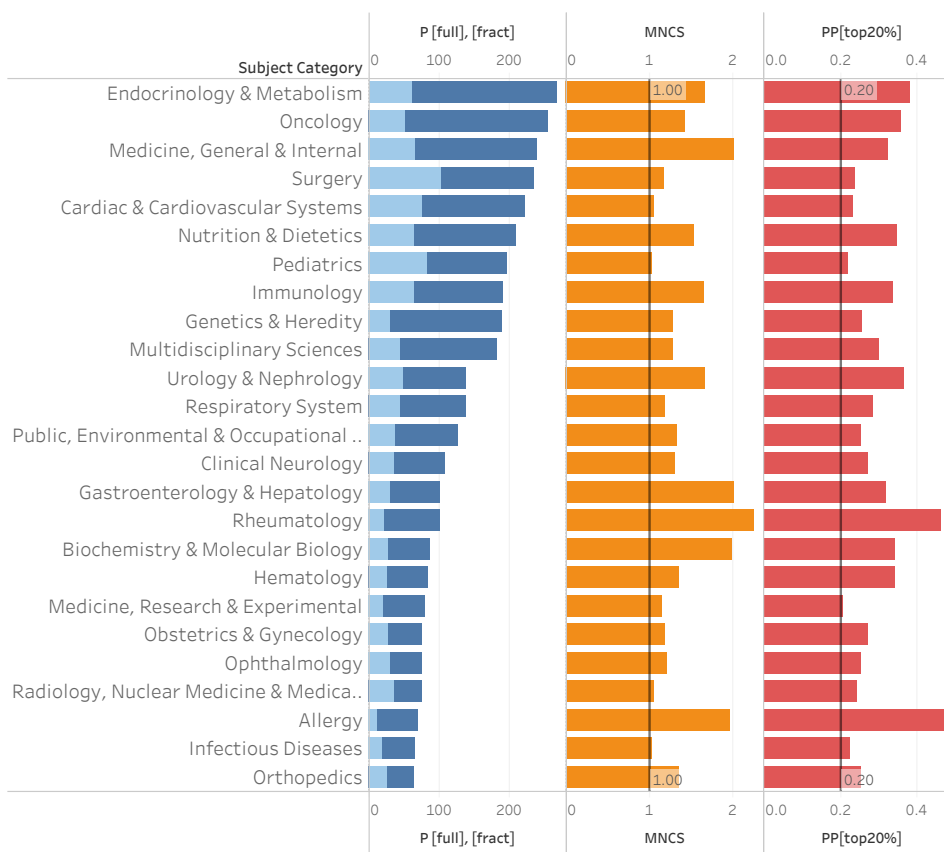
#### Performance

	Article	Review	Overall
P[full]	3,873	774	<b>4,647</b>
P[fract]	1,165	293	<b>1,458</b>
PP[collab]	0.92	0.87	<b>0.91</b>
PP[int collab]	0.52	0.46	<b>0.51</b>
TCS	56,236	13,921	<b>70,157</b>
P[top20%]	1,345	371	<b>1,715</b>
PP[top20%]	0.26	0.40	<b>0.29</b>
MNCS	1.24	1.96	<b>1.38</b>
MNJS	1.20	1.66	<b>1.29</b>

#### Collaboration profile



#### Research profile



### 3.2.50 University Hospitals Birmingham NHS Foundation Trust

University Hospitals Birmingham NHS Foundation Trust (UHB) is an NHS foundation trust with over 20,000 members of staff, managing among others Birmingham Heartlands Hospital, Queen Elizabeth Hospital Birmingham, Solihull Hospital and Community Services, Good Hope Hospital in Sutton Coldfield and Birmingham Chest Clinic.

#### Performance

The performance table lists overall output and impact for UHB publications within the scope of this study. This results in a total publication count of 4,946, or 1,697 using fractional counting. These numbers give us an average UHB publication contribution of just over a third of the authors. UHB authors have collaborated with at least one outside author on 88% of publications, and with at least one author with an international affiliation on 37%. This latter number is somewhat lower than we tend to see in this study, where international collaboration generally takes place more frequently. UHB performs above world average on all impact indicators, with MNCS being slightly higher than MNJS, and reviews having higher impact than articles, both of which are common patterns across this analysis.

#### Profiles

The collaboration profile shows that single institute is by far the smallest category in terms of output, while national is the biggest. Impact shows a pattern we observe frequently, with international outperforming national, which in turn outperforms single institute. Single institute performs below world average on impact. Publishing in collaboration seems to push UHB impact above this world average.

Finally, the research profile lists the top 25 subject categories for UHB publications. The categories are ranked by full-counting output (using fractional, the first two categories would exchange places). While *General & Internal Medicine* and *Surgery* are the two highest-output categories for UHB, they are not the most impactful. In fact, the former even performs below world average on both indicators. Most publications in this category are in the *Journal of the Royal Army Medical Corps* (P: 187, MNCS: 0.30, PP[top20%]: 0.02). There are also publications with high impact in journals like *The Lancet* (P: 46, MNCS: 8.68) and *New England Journal of Medicine* (P: 18, MNCS: 20.53), but this does not seem to compensate for the lower-impact journals. Nevertheless, this example does show that even when looking at a lower detail level like subject categories, indicators do not always tell the entire story. Lower down the list we see high impact for categories like *Endocrinology & Metabolism*, *Urology & Nephrology*, *Critical Care Medicine* and *Rheumatology* and still a substantial number of publications.

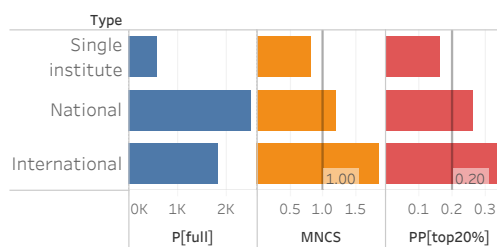
## University Hospitals Birmingham NHS Foundation Trust

### Bibliometric performance and profiles of the biomedical & health research

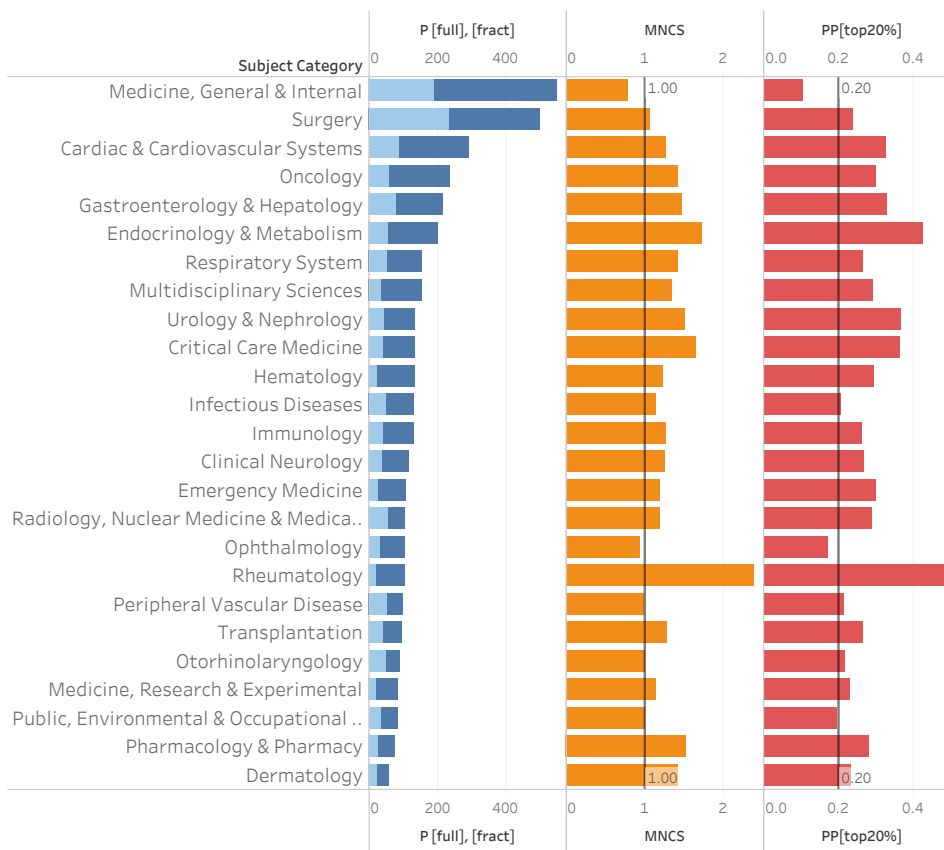
#### Performance

	Article	Review	Overall
P[full]	4,113	833	<b>4,946</b>
P[fract]	1,368	329	<b>1,697</b>
PP[collab]	0.89	0.85	<b>0.88</b>
PP[int collab]	0.38	0.34	<b>0.37</b>
TCS	60,103	10,706	<b>70,809</b>
P[top20%]	1,347	366	<b>1,712</b>
PP[top20%]	0.22	0.36	<b>0.25</b>
MNCS	1.11	1.53	<b>1.19</b>
MNJS	1.10	1.25	<b>1.13</b>

#### Collaboration profile



#### Research profile



### 3.2.51 University Hospitals Bristol NHS Foundation Trust

University Hospitals Bristol NHS Foundation Trust (UHB) is an NHS foundation trust with over 13,000 staff. It manages several hospitals in the Bristol area including St. Michael's Hospital, Bristol Eye Hospital, Bristol Royal Hospital for Children and the Bristol Royal Infirmary.

#### Performance

The performance table lists overall output and impact for UHB publications within the scope of this study. This amounts to a total publication count of 2,820, or 899 when using fractional counting. This means that UHB on average contributes just under a third of the authors for the publications here. We see that UHB collaborates with at least one outside author on 90% of publications, and with at least one author with international affiliation on 41% of publications. This international ratio is somewhat lower than we see for most units of analysis in our study (which tend to have an international collaboration percentage of over 50%). UHB performs above world average for all impact indicators, with reviews significantly outperforming articles (also a common trend).

#### Profiles

In the collaboration profile, we can see that national collaboration comprises the largest group here, with single institute by far the smallest in terms of output. We can also see that single institute actually performs below world average, something which is made up for in the overall impact indicators by the strong impact performance of international.

In the research profile, three categories stand out by output: *General & Internal Medicine*, *Oncology* and *Pediatrics*. Note, though, that the list is ranked by full-counting research output, and that if fractional counting was used as the sorting variable, both *Surgery* and *Cardiac & Cardiovascular Systems* would have a higher output (or output contribution, if you will) than *Oncology*. Impact for these five mentioned subject categories varies strongly, with *Pediatrics* and *Surgery* performing below world average and the other three clearly above. The performance of *General & Internal Medicine* on MNCS in particular is high. This maybe due to the high impact of publications in journals in this category, *The Lancet* and *New England Journal of Medicine*, with an MNCS of 10.35 and 19.55 respectively. Though such outliers boost the MNCS score significantly, every outlier publication only counts as one top publication for the PP[top20%], as such having a less significant impact on that indicator. In addition, we mention *Rheumatology*, *Gastroenterology & Hepatology* and *Anesthesiology*, as specialist categories with high impact

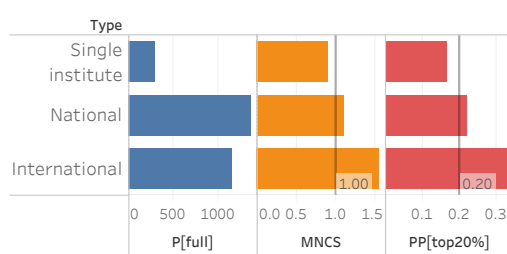
### University Hospitals Bristol NHS Foundation Trust

#### Bibliometric performance and profiles of the biomedical & health research

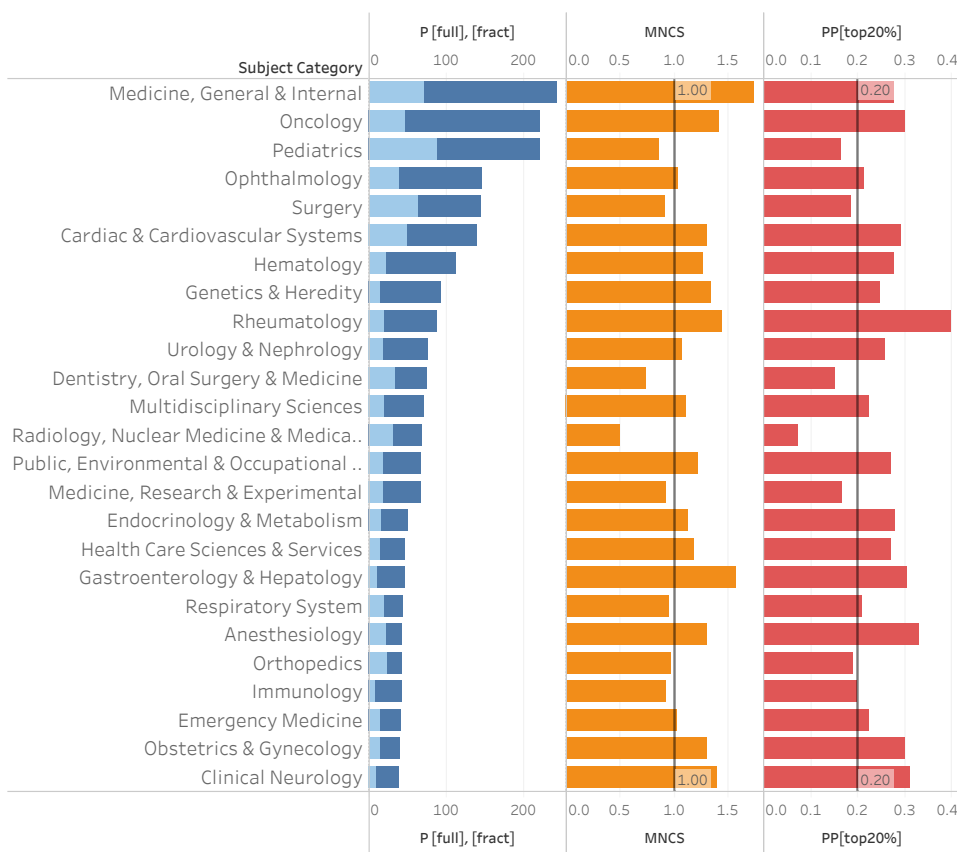
##### Performance

	Article	Review	Overall
P[full]	2,430	390	2,820
P[fract]	731	168	899
PP[collab]	0.91	0.81	0.90
PP[int collab]	0.42	0.33	0.41
TCS	30,843	4,825	35,668
P[top20%]	746	154	899
PP[top20%]	0.21	0.31	0.23
MNCS	1.04	1.52	1.13
MNJS	1.11	1.36	1.15

##### Collaboration profile



##### Research profile



### 3.2.52 University Hospitals of Leicester NHS Trust

University Hospitals of Leicester NHS Trust (UHL) manages the three NHS hospitals in Leicester: Glenfield Hospital, Leicester General Hospital and Leicester Royal Infirmary.

#### Performance

The overall performance of UHL is relatively high with an MNCS of 1.18 and a PP top20 of 24%. In total, there are 3,383 publications published by UHL in the period 2011–2018. Fractionally counted, this gives 1,256 publications, meaning that on average, each publication shows an affiliation of about 37% for UHL. The MNJS of 1.15 is somewhat lower than the MNCS, suggesting that publications of UHL on average have a higher citation impact than other publications published in the same journals. The performance table also shows that the output received a total of 49,074 citations (TCS) and that roughly 84% (based on full counting) of the publications included are articles, the remainder being reviews. The PP [collab] and PP [international collab] show that 84% of publications are produced in collaboration with other institutions, and almost 1 in 2 of those are produced in collaboration across borders.

#### Profiles

As mentioned above, the majority of UHL publications are produced in collaboration; only 16% of publications are not produced in collaboration. The patterns of collaboration for international and national are quite similar. In 42% of its publications, UHL collaborates with other institutions in UK (national collaboration), while in 41% they collaborate with international institutions outside the UK. This attests to the ambition of UHL to collaborate both nationally and internationally.

The three most important subject categories as ranked by publication output (P[full]) are *Cardiac & Cardiovascular Systems, Surgery*, and *General & Internal Medicine* which also has a very high impact (MNCS: 2.49). There are also sizeable (>150) publication outputs for the *Respiratory System*, and *Oncology* categories. In this particular figure, it is worth focusing on a significant difference between P[full] and P[fract]. We can see that *Surgery* largely outperforms *Cardiac & Cardiovascular Systems* when fractional counting is used, suggesting that in the publications of the former the UHL input was, on average, greater per publication than for the latter. When looking at the impact indicators, we can see that *Hematology* and *Anesthesiology* score high values.

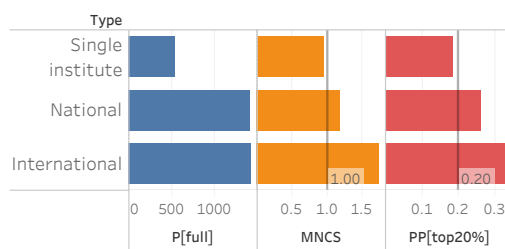
### University Hospitals of Leicester NHS Trust

#### Bibliometric performance and profiles of the biomedical & health research

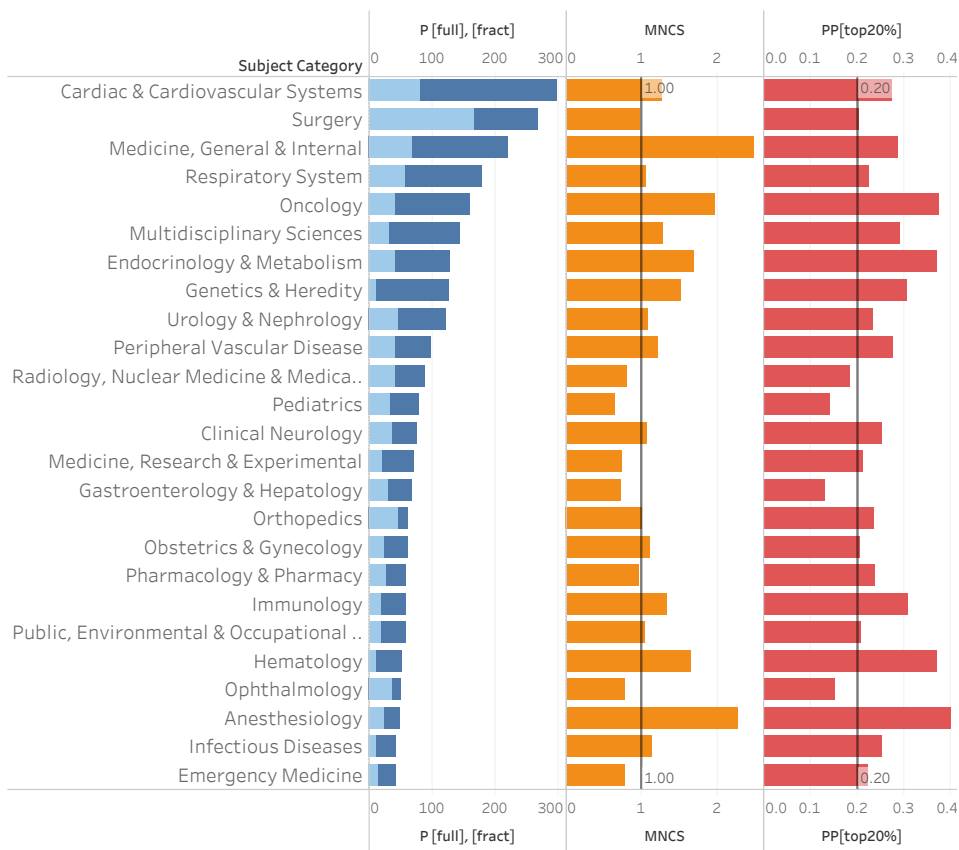
##### Performance

	Article	Review	Overall
P[full]	2,859	524	<b>3,383</b>
P[fract]	1,014	241	<b>1,256</b>
PP[collab]	0.85	0.79	<b>0.84</b>
PP[int collab]	0.44	0.35	<b>0.42</b>
TCS	42,357	6,960	<b>49,317</b>
P[top20%]	947	214	<b>1,161</b>
PP[top20%]	0.22	0.35	<b>0.24</b>
MNCS	1.06	1.76	<b>1.20</b>
MNJS	1.08	1.47	<b>1.15</b>

##### Collaboration profile



##### Research profile



### 3.2.53 University of Hull

The University of Hull (UoH) was founded in 1927 and has more than 16,000 students and around 2,500 employees, including more than 1,000 academic staff.

#### Performance

The performance table shows that a total of 2,834 publications (i.e. articles and reviews) were produced by UoH between 2011 and 2018. This output has been cited 25,119 times (TCS) (excluding self-citations). The MNCS value, including both document types, is 1.19 or, in other words, 19% higher than world average in the same fields and publication years. UoH's publications appear in journals with an impact value also higher than world average (MNJS [fract] = 1.18). In terms of the PP top20 indicator, 25% of publications published by UoH are among the upper top 20% of most highly cited papers worldwide. Additionally, the sharp difference between the publication output of article and reviews (P [full]) is worth mentioning, with respectively 2,430 publications and 404 publications.

#### Profiles

The majority of UoH publications are produced in collaboration; only 14% of publications are not produced in collaboration (single-institute). The impact of the three types does not differ substantially. As seen in the collaboration profile figure, the MNCS and PP[top20%] values are above world average for all types of collaboration with an MNCS of 1.34 for international collaboration followed very closely by national collaboration (MNCS: 1.15) and lastly, single institute which scores slightly below the two others (MNCS: 1.07).

Further, the top subject category is *Multidisciplinary Sciences*, followed by *General & Internal Medicine* and *Cardiac & Cardiovascular System*. The second bar column reflects the output normalised by the number of organisations involved in each publication and hence sheds light on the field-specific publication behaviour. Thus, we see that in *Experimental Psychology*, co-authoring teams are smaller (P[fract] is smaller) than in *Health Care Sciences*. When looking at the impact indicators, we see that in many categories with fewer publications than the top ones, the impact is high on PP[top20%].



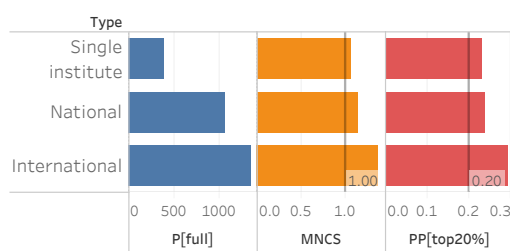
## University of Hull

## Bibliometric performance and profiles of the biomedical &amp; health research

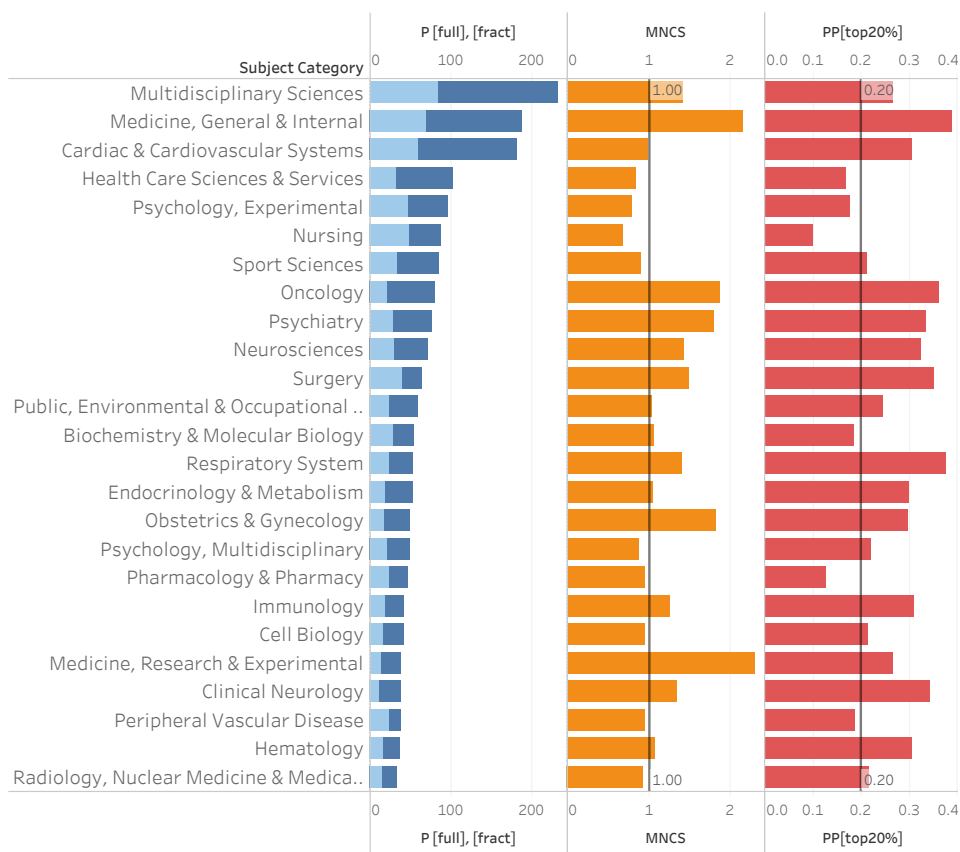
## Performance

	Article	Review	Overall
P[full]	2,430	404	<b>2,834</b>
P[fract]	954	197	<b>1,152</b>
PP[collab]	0.88	0.77	<b>0.86</b>
PP[int collab]	0.50	0.38	<b>0.48</b>
TCS	19,695	5,424	<b>25,119</b>
P[top20%]	617	187	<b>804</b>
PP[top20%]	0.22	0.44	<b>0.25</b>
MNCS	1.05	1.90	<b>1.20</b>
MNJS	1.12	1.49	<b>1.18</b>

## Collaboration profile



## Research profile



### 3.2.54 University of Kent

The University of Kent (formerly the University of Kent at Canterbury, abbreviated as UKC) is a semi-collegiate public research university based in Kent, United Kingdom.

#### Performance

The performance table shows that a total of 2,302 publications were produced by UKC and received a total of 20,099 citations (TCS), with a distribution of 2,134 articles and 168 reviews. When looking at the normalised number of publications using fractional counting, the output (P[fract]) is assessed as 1,030. This implies that many publications are produced in collaboration with other institutions. This is also reflected by the high share of publications involving collaboration with at least one partner organisation (PP [collab]), and 52% with at least one international partner. The MNCS value is 1.20 (20% higher than the world average in the same fields and publication years). Moreover, the citation-based impact of the journals in which the university publishes its articles is 17% above the world average (MNJS: 1.17). The PP[top20%] indicator shows that 24% of publications published by UKC are among the upper top 20% of the most highly cited papers worldwide. Overall, the impact indicators are quite high, especially for the reviews.

#### Profiles

Further, slightly more than half of the publications were produced in international collaboration (30%, MNCS: 1.28), followed by national collaboration (26%, MNCS: 1.26) and single institute (18%, MNCS: 1.11). In terms of impact, publications derived from international collaboration and national collaboration have a slightly higher MNCS and PP top20 score than publications from institute alone but the difference is not significant enough to draw any conclusion.

The Research profile shows that many papers were published in multidisciplinary journals (mainly *PloS ONE* and *Scientific reports*). Other important subject categories are *Biochemistry & Molecular Biology*, *Multidisciplinary Psychology*, *Pharmacology & Pharmacy*, *Experimental Psychology* and *Sport Sciences*.

In all these categories, the impact is around or well above the world average. In particular, *Sport Sciences* stands out (together with the less specific *Multidisciplinary Sciences*). At the lower end of the list we find *Developmental Psychology* with high impact (both by MNCS and PP[top20%]).

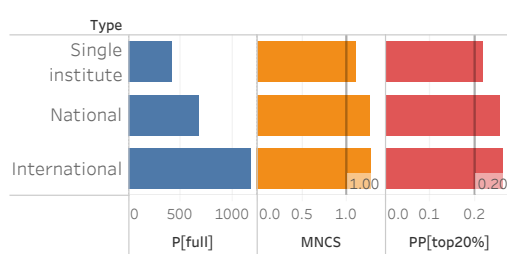
## University of Kent

## Bibliometric performance and profiles of the biomedical &amp; health research

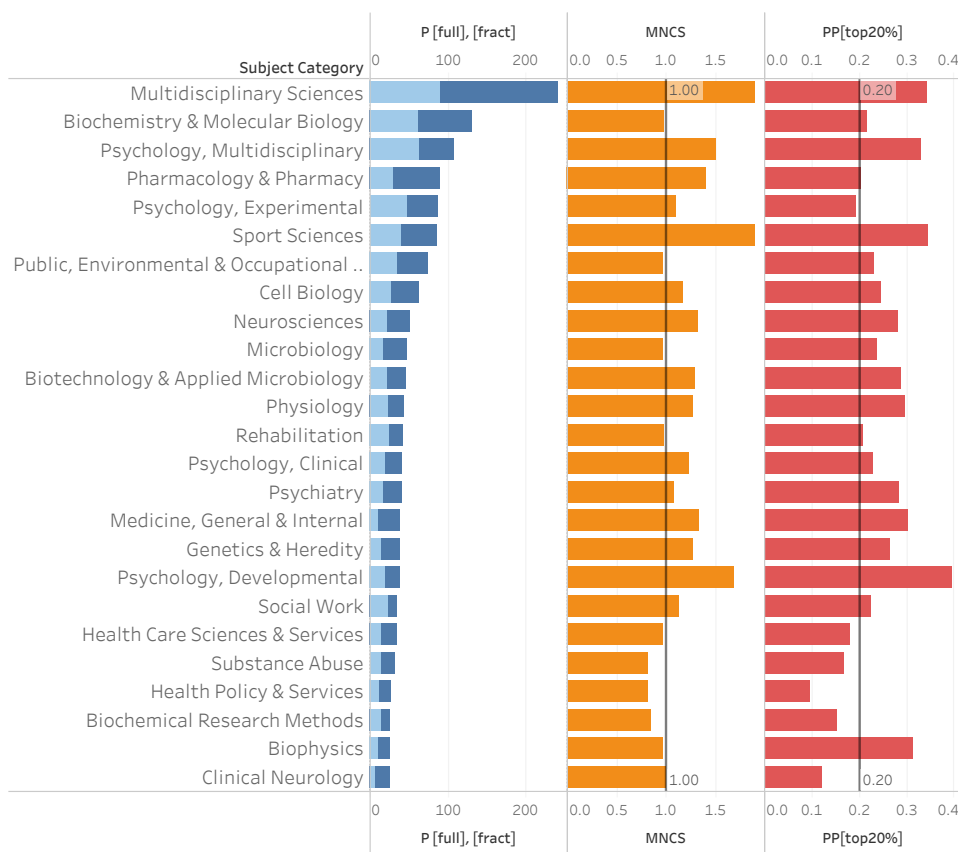
## Performance

	Article	Review	Overall
P[full]	2,134	168	2,302
P[fract]	947	82	1,030
PP[collab]	0.82	0.77	0.81
PP[int collab]	0.52	0.42	0.52
TCS	18,094	2,008	20,102
P[top20%]	550	82	632
PP[top20%]	0.22	0.47	0.24
MNCS	1.14	1.99	1.20
MNJS	1.14	1.50	1.17

## Collaboration profile



## Research profile



### 3.2.55 University of Leeds

The University of Leeds is a public research university in Leeds, West Yorkshire, England. It was established in 1874 as the Yorkshire College of Science. The university has 36,250 students, the fifth largest university in the UK (out of 169).

#### Performance

The medical and health research staff at the university of Leeds were involved in 10,322 publications from 2011 to 2018. About 80% of them are research articles in peer-reviewed journals. The remaining output is published as reviews. These publications received more than 125,036 citations until 2019. 29% of the output belongs to the top 20 most cited publications as shown by the PP[top20%] indicator. The impact as measured by MNCS is 1.38, which means that on average the impact is 38% above the world average. Also, the journals in which the University of Leeds publishes have an average impact well above the world average (MNJS: 1.32). Lastly, we can see that more than half of the output is published in international collaboration (PP[int collab]: 0.54).

#### Profiles

As seen in the previous part, the University of Leeds is extensively engaged in international collaboration. Publications that are not co-authored with other organisations, as represented by 'single institute', represent only 13% of the total output. When looking more precisely at the impact of co-authored publications, we can see that although all output types are well cited, the impact is particularly high for co-authored publications internationally.

In the research profile figure, we can see that the top subject category is Multi-disciplinary Sciences where most papers were published in multidisciplinary journals (*PloS ONE* and *Scientific reports*), followed by *Rheumatology* and *Oncology*. There are also sizeable (>300) publication outputs for the *Biochemistry & Molecular Biology*, *Medicine*, *Internal & General* and *Public, Environmental & Occupational Health* categories. When we look at publication impact, we see that in almost all categories University of Leeds performs well.

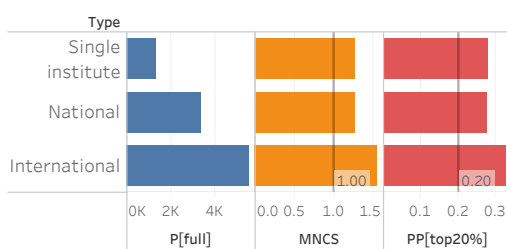
## University of Leeds

## Bibliometric performance and profiles of the biomedical &amp; health research

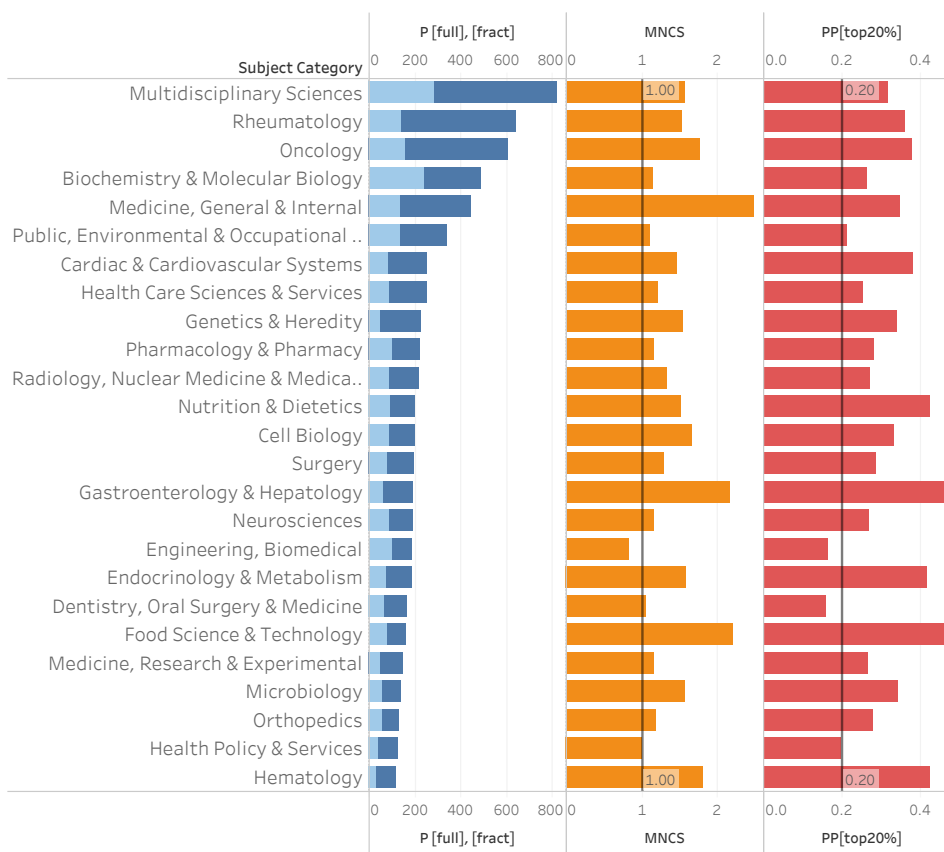
## Performance

	Article	Review	Overall
P[full]	8,919	1,403	10,322
P[fract]	3,368	610	3,978
PP[collab]	0.88	0.81	0.87
PP[int collab]	0.55	0.48	0.54
TCS	97,172	28,064	125,236
P[top20%]	2,761	736	3,497
PP[top20%]	0.26	0.49	0.29
MNCS	1.21	2.33	1.38
MNJS	1.23	1.77	1.32

## Collaboration profile



## Research profile



### 3.2.56 University of Leicester

The University of Leicester (UoL) is a public research university based in Leicester, England. It was founded in 1921 as a memorial to the Great War and in 1957, the university's predecessor (University College, Leicester) gained university status.

#### Performance

The indicator of output  $P[\text{full}]$  shows that 6,232 publications were produced by UoL. In total, those publications have been cited 101,288 times. In terms of impact, the MNCS value is 1.29; this means that UoL's publications perform above the world average (1.00) in the same fields and years. Furthermore, these publications appear in journals with a high impact value of 1.27 (MNJS). In terms of the  $PP[\text{top}20\%]$  indicator, approximately 28% of publications published by UoL are among the upper top 20% of highly cited papers worldwide.

#### Profiles

As can be seen in the collaboration profile, the highest share of the output involves international collaboration, which also attracts the highest number of citations, both by MNCS and  $PP[\text{top}20\%]$ . Additionally, it is worth mentioning that all three types of collaboration have an impact higher than world average.

In the research profile figure, we can see that the top subject category is *Multidisciplinary Sciences* ( $P[\text{full}]=577$ ) where most papers were published in multidisciplinary journals (*PloS ONE*). The other important subject categories are *Biochemistry & Molecular Biology* and *General & Internal Medicine* with respectively 343 and 312 publications. The impact of UoL's publications is high in almost all categories listed.

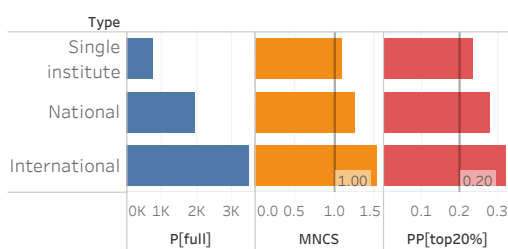
## University of Leicester

## Bibliometric performance and profiles of the biomedical &amp; health research

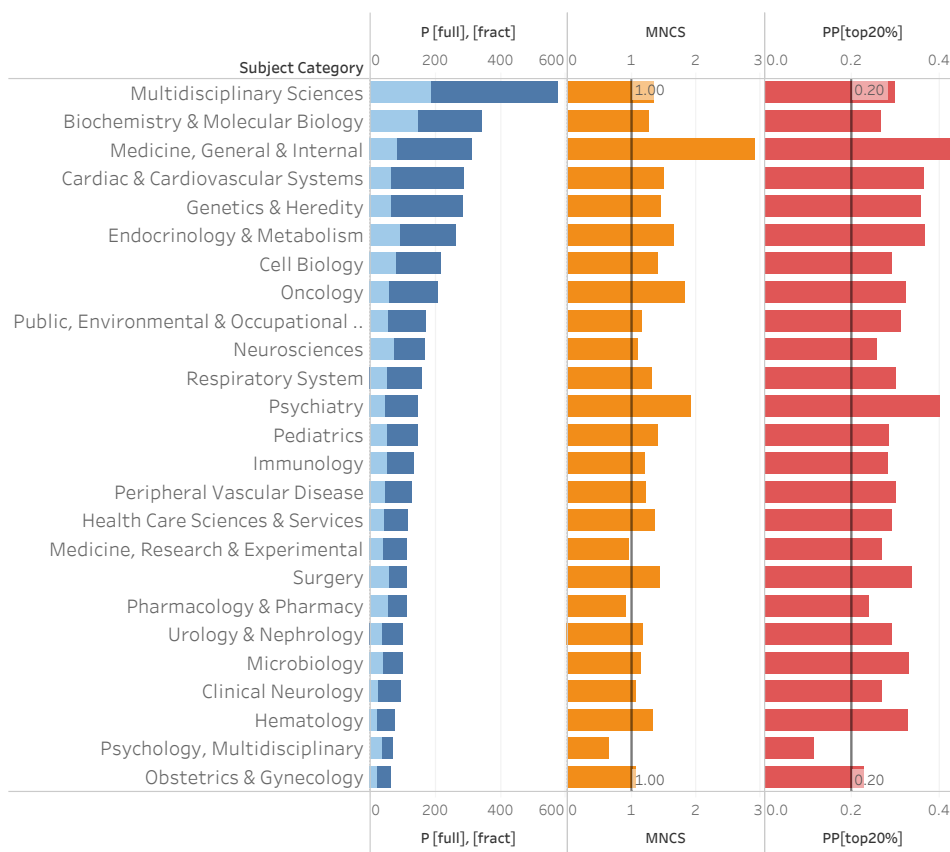
## Performance

	Article	Review	Overall
P[full]	5,492	740	6,232
P[fract]	1,928	322	2,251
PP[collab]	0.89	0.81	0.88
PP[int collab]	0.58	0.46	0.56
TCS	86,057	15,399	101,456
P[top20%]	1,824	368	2,193
PP[top20%]	0.25	0.46	0.28
MNCS	1.16	2.13	1.30
MNJS	1.20	1.75	1.28

## Collaboration profile



## Research profile



### 3.2.57 University of Liverpool

The University of Liverpool is a public university based in the city of Liverpool, England. Founded as a college in 1881, it gained its Royal Charter in 1903 with the authority to award degrees. It comprises three faculties organised into 35 departments and schools.

#### Performance

The University of Liverpool was involved in more than 13,587 biomedical and health publications in the period from 2011 to 2018. These publications were cited more than 171,399 times up to 2019. In terms of impact, the MNCS value is 1.35 which is above world average (1.00) in the same fields and years. The MNCS is particularly high for the reviews (MNCS: 2.18). Further, these publications appear in journals (MNJS) with a successfully high impact value of 1.29. In terms of the PP[top20%] indicator, approximately 29% of publications published are among the upper top 20% of highly cited papers worldwide. The stark difference between full and fractional counting numbers here also indicates their strong collaborative practices. This is further confirmed by the PP[collab] and PP[int collab], showing that roughly 9 out of 10 publications are produced in extra-university collaboration, and more than 1 in 2 is produced in international collaboration.

#### Profiles

In terms of collaboration, the output distribution clearly shows that the main type involves largely international collaboration (P: 8,198), whereas national collaboration and single institution count respectively for 3,818 publications and 1,571 publications. However, the impact of the three types does not differ substantially. All three types of collaboration have an impact above world average, with a slightly higher impact (both for MNCS and PP[top20%] when co-authoring internationally.

In the research profile figure, we can see that the top subject category is *Multidisciplinary Sciences*, where most papers were published in multidisciplinary journals (*PloS ONE* and *Scientific Reports*). There are also sizeable (>500) publication outputs for the categories *Medicine, Internal & General*, *Veterinary Sciences*, *Public, Environmental & Occupational Health* and *Infectious Disease* categories. When we look at the publication impact, we see that this is especially high in *General & Internal Medicine* but also in various categories lower down the list.



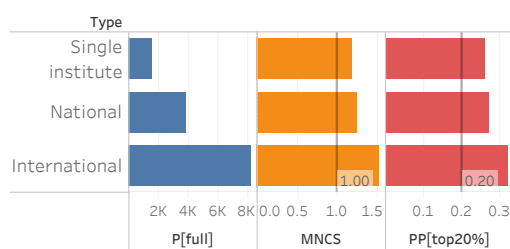
## University of Liverpool

### Bibliometric performance and profiles of the biomedical & health research

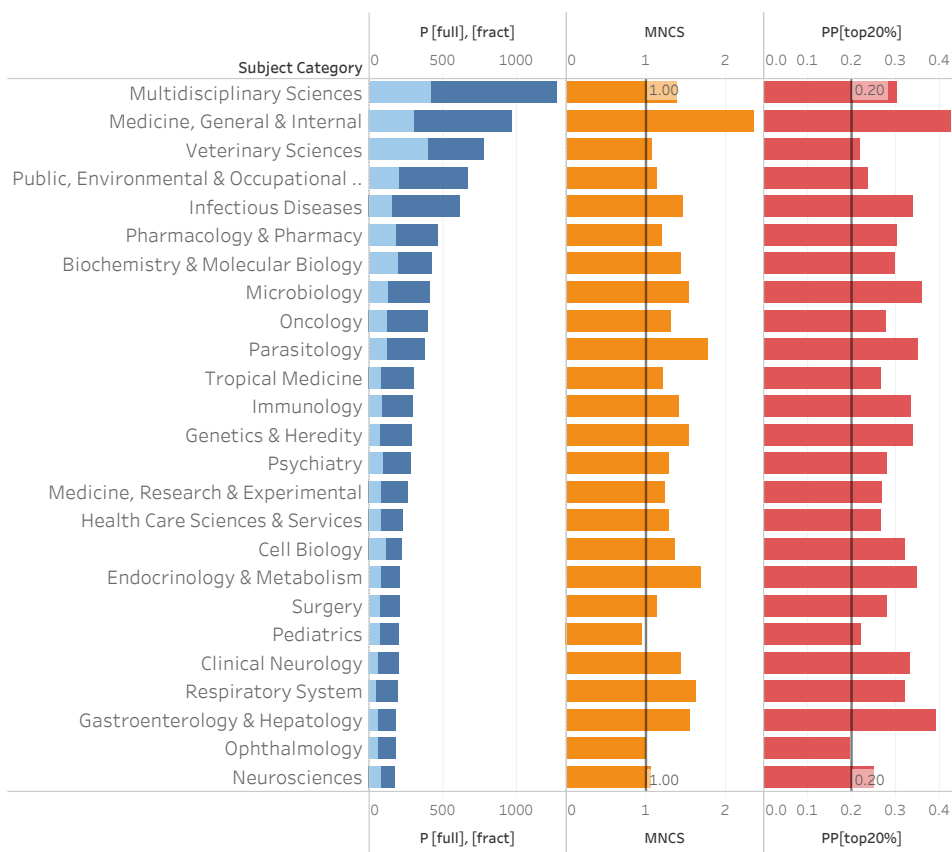
#### Performance

	Article	Review	Overall
P[full]	11,521	2,066	<b>13,587</b>
P[fract]	4,063	857	<b>4,920</b>
PP[collab]	0.89	0.84	<b>0.88</b>
PP[int collab]	0.61	0.54	<b>0.60</b>
TCS	135,861	35,437	<b>171,298</b>
P[top20%]	3,476	1,075	<b>4,551</b>
PP[top20%]	0.25	0.48	<b>0.29</b>
MNCS	1.17	2.18	<b>1.35</b>
MNJS	1.19	1.78	<b>1.29</b>

#### Collaboration profile



#### Research profile



### 3.2.58 University of Manchester

The University of Manchester (UoM) is a public research university in Manchester, England, formed in 2004 by the merger of the University of Manchester Institute of Science and Technology and the Victoria University of Manchester. In 2018/19, the university had 40,250 students and 10,400 staff, making it the second largest university in the UK.

#### Performance

The medical and health research staff of UoM were involved in 21,207 publications from 2011 to 2018. Over 85% of them are research articles in peer reviewed journals. The remainder output is published in reviews. In total, these publications received 278,089 citations up to 2019. 29% of the output (P[top20]: 7,224) belongs to the top 20 most cited publications. For reviews this is even 47%. The impact as measured by MNCS is 1.39, which means that on average the impact is 39% above the world average. The journals in which they publish also have an average impact well above the world average (MNJS: 1.31).

#### Profiles

As seen in the performance table, the majority of UoM publications were produced in collaboration (PP[collab]: 87%). That observation is corroborated in the collaboration figure in the breakdown of publications into single institute, national and international collaboration is shown. Although all output types are well cited, the impact is particularly high for internationally co-authored publications.

The research profile clearly show a focus on *Multidisciplinary Sciences* (mainly in *PLoS ONE*). Another prominent subject category is *General & Internal Medicine* with a high output and a high impact. Looking at the output normalised by the number of organisations involved (P[fract]), we can derive that research in *Oncology* and *General & Internal Medicine* is particularly conducted in larger consortia, in comparison with *Biochemistry & Molecular Biology*. Moreover, research in *Cell Biology* and *Immunology* has a very high impact as shown by the PP[top20%] indicator; roughly 40% of the output belongs to the top 20% most cited publications. It should be noted, however, that UoM has high impact in all categories listed.

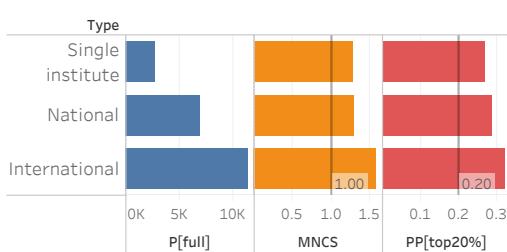
### The University of Manchester

#### Bibliometric performance and profiles of the biomedical & health research

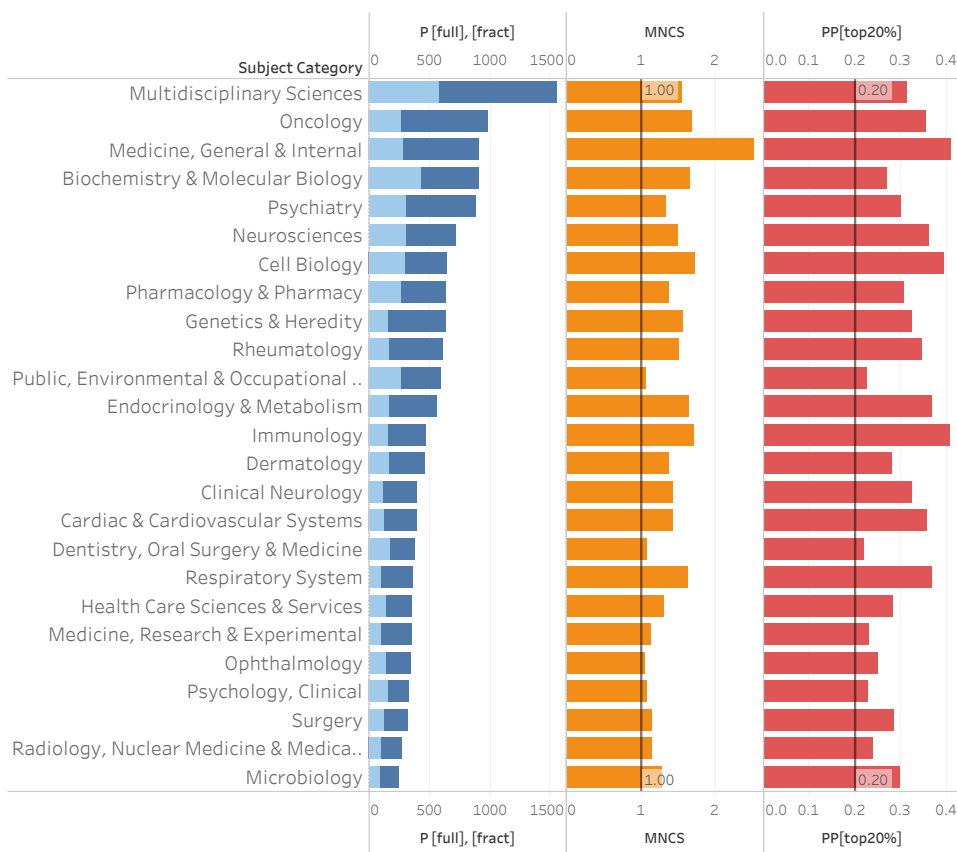
##### Performance

	Article	Review	Overall
P[full]	18,203	3,004	<b>21,207</b>
P[fract]	6,796	1,317	<b>8,113</b>
PP[collab]	0.88	0.82	<b>0.87</b>
PP[int collab]	0.55	0.47	<b>0.54</b>
TCS	220,279	57,636	<b>277,915</b>
P[top20%]	5,718	1,505	<b>7,222</b>
PP[top20%]	0.26	0.47	<b>0.29</b>
MNCS	1.23	2.21	<b>1.39</b>
MNJS	1.21	1.83	<b>1.31</b>

##### Collaboration profile



##### Research profile



### 3.2.59 University of Nottingham

The University of Nottingham is a public research university in Nottingham, United Kingdom. Nottingham is organised into five constituent faculties, within which there are more than 50 schools, departments, institutes and research centres. Nottingham has about 45,500 students and 7,000 staff.

#### Performance

In terms of output, the medical and health research staff were involved in 13,101 publications from 2011 to 2018. Most of them are research articles in peer-reviewed journals. The remaining output is published as reviews (P[full]: 1,837). In total, these publications received 156,150 citations up to 2019, while 4,089 publications belong to the top 20 most cited publications. Similarly, the MNCS (1.32) and MNJS (1.23) are also clearly above world average. Notably, the University of Nottingham has especially a high impact in reviews.

#### Profiles

We can see that the majority of the medical and health research staff publications are produced in collaboration (PP[collab]: 82%). Although all output types are well cited, the impact is particularly high for co-authored publications internationally. Nevertheless, we can observe that for single-institute publications and co-authored publications nationally, the University of Nottingham still performs above the world average on both impact indicators, and is actually rather close to the international collaborative impact when it comes to PP[top20%].

Looking at the research profile, we can see that the majority of publications are in *Multidisciplinary Sciences* journals. The most often used journals are *Plos ONE* and *Scientific Reports*. Other prominent subject categories are *General & Internal Medicine* and *Gastroenterology & Hepatology* with a high output (P[full] >200) and a very high impact in terms of PP[top20%], with 40% of the publications belonging to the top 20 most cited publications. Moreover, it is worth mentioning that many subject categories score quite highly in terms of MNCS and PP[top20%], particularly *Gastroenterology & Hepatology* and *Rheumatology*.

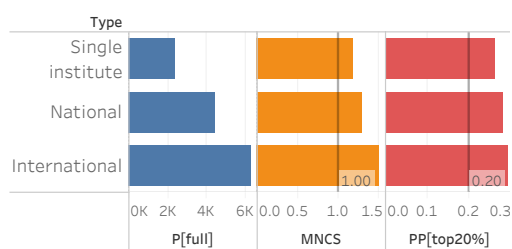
## University of Nottingham

## Bibliometric performance and profiles of the biomedical &amp; health research

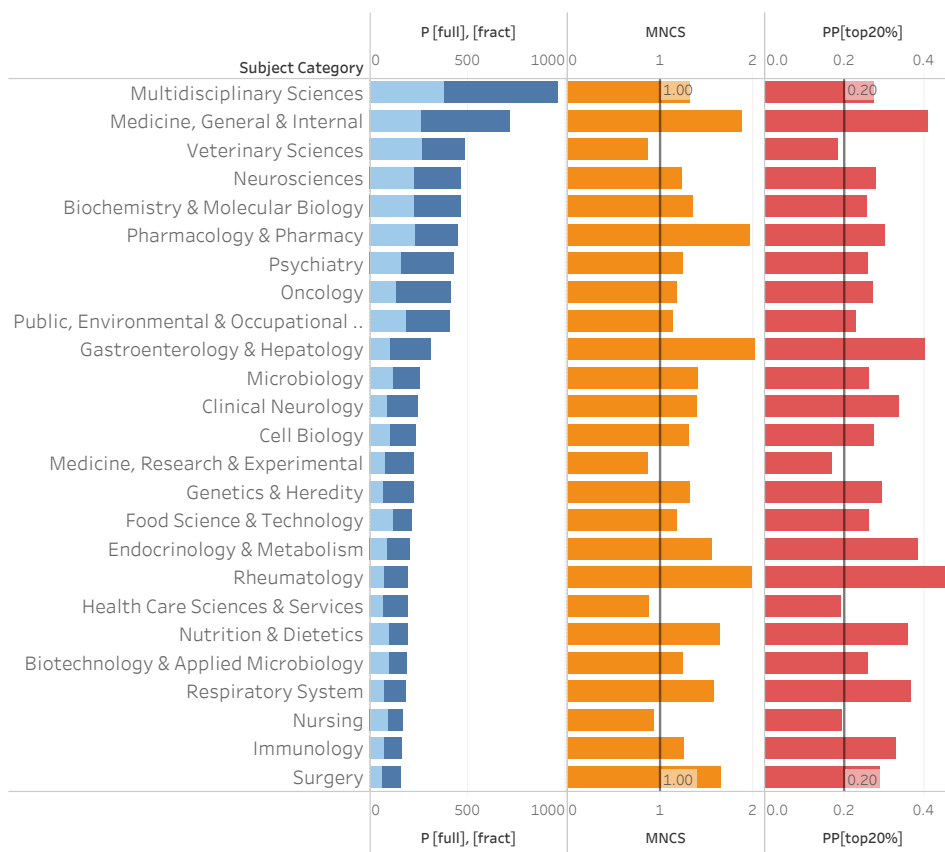
## Performance

	Article	Review	Overall
P[full]	11,266	1,835	<b>13,101</b>
P[fract]	4,893	840	<b>5,734</b>
PP[collab]	0.82	0.79	<b>0.82</b>
PP[int collab]	0.48	0.47	<b>0.48</b>
TCS	124,726	31,525	<b>156,251</b>
P[top20%]	3,162	927	<b>4,089</b>
PP[top20%]	0.24	0.48	<b>0.28</b>
MNCS	1.17	2.20	<b>1.32</b>
MNJS	1.16	1.67	<b>1.23</b>

## Collaboration profile



## Research profile



### 3.2.60 University of Oxford

The University of Oxford is a collegiate research university in Oxford, Oxfordshire, England. There is evidence of teaching as early as 1096, making it the oldest university in the English-speaking world. The university is made up of 39 semi-autonomous constituent colleges, six permanent private halls, and a range of academic departments which are organised in four divisions

#### Performance

The medical and health research staff of the University of Oxford were involved in 36,995 publications from 2011 to 2018. Fractionally counted, the research staff affiliated to Oxford University authored 13,518 publications, meaning that on average, they publish in rather small consortia. The impact of their publications is very high (more than 600,000 citations, MNCS: 1.77). Also, the University of Oxford published in very high impact journals. The impact of these journals is 64% above the world average. Finally, 37% of the output ( $P[\text{top20}]=15,001$ ) belongs to the top 20 most cited publications. For reviews this is even 55%.

#### Profiles

As seen in the performance table, the majority of the publications from medical and health research staff of the University of Oxford were produced in collaboration (PP[collab]: 87%) and roughly 6 out of 10 publications involve international collaboration. Although all output types are very well cited with an MNCS above 1.50, the impact is particularly high for internationally co-authored publications. However, it is worth mentioning that although a much smaller amount of the output involves Oxford University only. (P: 4,802), they receive a lot of citations and even more than the ones published in national collaboration.

Looking at the research profile, we can see that the majority of the output is published in *Multidisciplinary Sciences* journals. The most often used journals are *Plos ONE*, *Scientific Reports* *Proceedings of the National Academy of Sciences* and *Nature Communications* with more than 500 publications published in each. Research published in these journals involve larger teams as we read from the large differences between the  $P[\text{full}]$  and  $P[\text{fract}]$  from this category. Moreover, another subject category that scores very highly in terms of output and impact (for both MNCS and PP [top20%] is *General & Internal Medicine*. Lastly, it is remarkable that all subject categories have an MNCS above (or high above) world average.

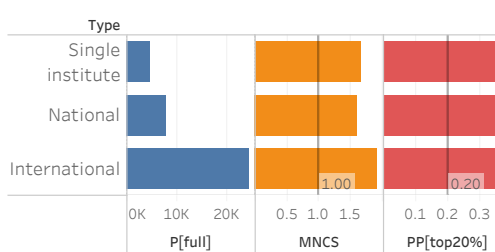
## University of Oxford

## Bibliometric performance and profiles of the biomedical &amp; health research

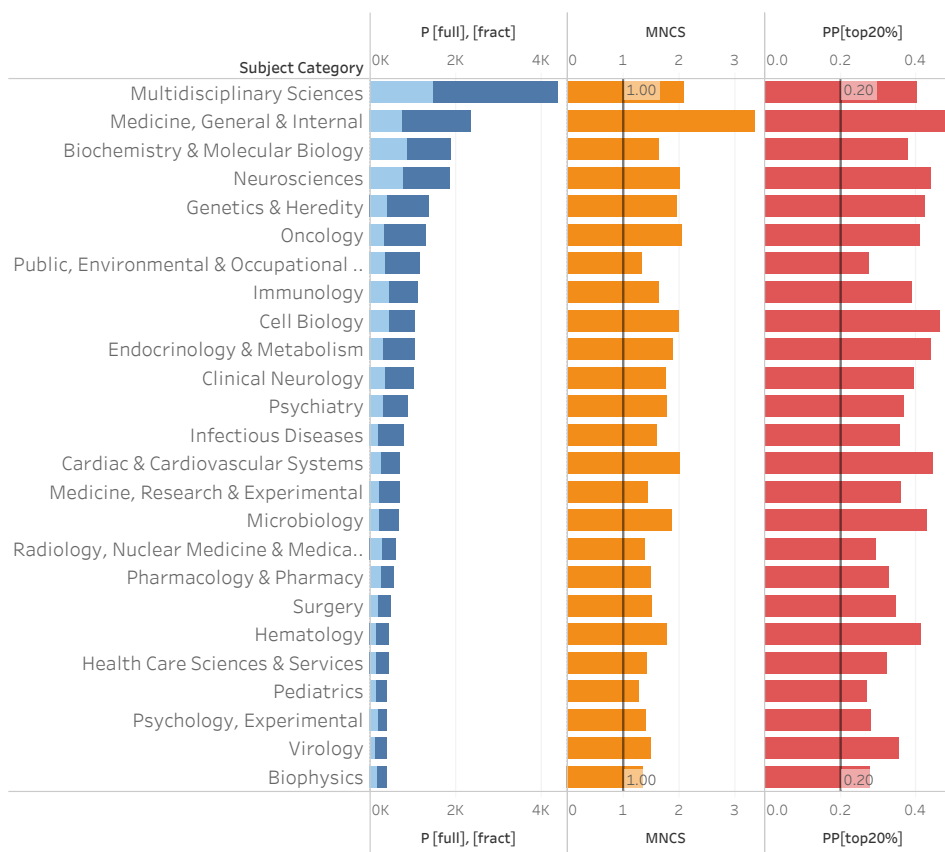
## Performance

	Article	Review	Overall
P[full]	31,811	5,184	<b>36,995</b>
P[fract]	11,060	2,457	<b>13,517</b>
PP[collab]	0.89	0.76	<b>0.87</b>
PP[int collab]	0.68	0.54	<b>0.66</b>
TCS	534,300	118,312	<b>652,612</b>
P[top20%]	12,038	2,965	<b>15,002</b>
PP[top20%]	0.33	0.55	<b>0.37</b>
MNCS	1.58	2.64	<b>1.77</b>
MNJS	1.52	2.18	<b>1.64</b>

## Collaboration profile



## Research profile



### 3.2.61 University of Plymouth

The University of Plymouth is a public university based predominantly in Plymouth, England where the main campus is located, but the university has campuses and affiliated colleges across South West England. With 19,645 students, it is the 38th largest in the United Kingdom by total number of students.

#### Performance

The performance table shows that a total of 3,522 publications were produced by the medical and health research staff of the University of Plymouth – with a distribution of 3,074 articles and 448 reviews. This is also reflected by the share of publications involving co-authorship (PP[collab]: 0.85), with 1 out of 2 publications involving international collaboration. When looking at the impact indicators, the MNCS value is 1.23 and the citation-based impact of the journals in which the university publishes is 19% above the world average (MNJS: 1.19). The PP[top20%] indicator shows that 26% of their publications are among the upper top 20% of the most highly cited papers worldwide. Overall, the impact indicators are quite high, especially for the reviews.

#### Profiles

As seen in the performance table, the majority of the medical and health research staff publications are produced in collaboration (PP[collab]: 85%). When looking at the collaboration figures, we can see that although all output types are well cited, the impact is rather similar for single institute and national collaboration, while the impact of the publications involving international collaboration is higher.

In the research profile figure, we can see that the top subject category is *Multi-disciplinary Sciences* (P [full]=269), where most papers were published in multi-disciplinary journals (mainly in *PloS ONE*). The other important subject category is *General & Internal Medicine* with 218 publications. The impact of Plymouth University publications is highest in the categories of *General & Internal Medicine* with an MNCS score two times higher than world average and with more than 40% of publications among the upper top 20% of highly cited papers worldwide. Other categories worth mentioning with respect to their impact (both indicators) are: *Genetics & Heredity*, *Clinical Neurology*, *Toxicology* and *Nutrition & Dietetics*.



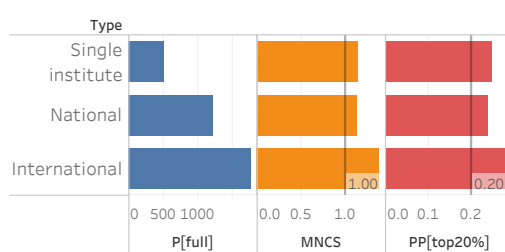
## University of Plymouth

## Bibliometric performance and profiles of the biomedical &amp; health research

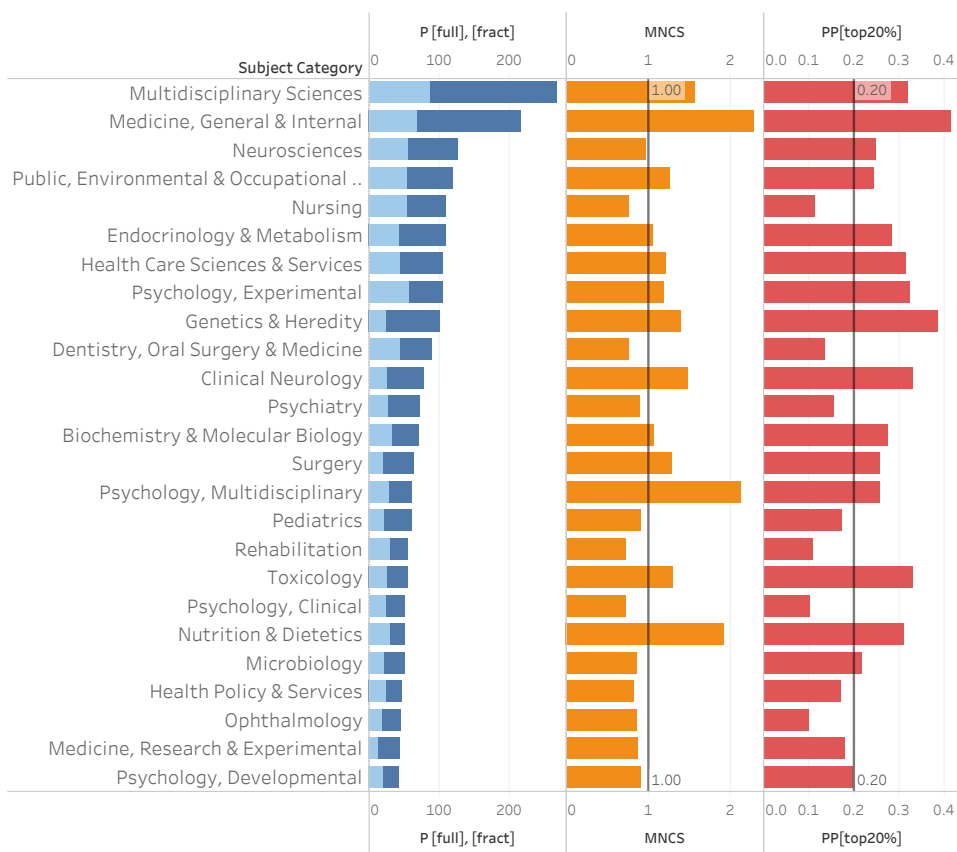
## Performance

	Article	Review	Overall
P[full]	3,074	448	<b>3,522</b>
P[fract]	1,255	194	<b>1,449</b>
PP[collab]	0.86	0.82	<b>0.85</b>
PP[int collab]	0.51	0.49	<b>0.50</b>
TCS	31,263	7,361	<b>38,624</b>
P[top20%]	851	220	<b>1,071</b>
PP[top20%]	0.23	0.45	<b>0.26</b>
MNCS	1.11	1.96	<b>1.22</b>
MNJS	1.13	1.60	<b>1.19</b>

## Collaboration profile



## Research profile



### 3.2.62 University of Reading

The University of Reading is a public university in Reading, Berkshire, England. It was founded in 1892 as University College, Reading, a University of Oxford extension college.

#### Performance

During the period 2011–2018, the medical and health research staff published 2,988 articles and reviews. Fractionally counted, the researchers affiliated to Reading University authored 1,331 publications, meaning that on average, authors from Reading University represent about a quarter of the total number of authors on those publications. The overall scientific impact of publications of Reading University is well above average. Its mean normalised citation score (MNCS) is 1.33, which is 33% above the world average. Similarly, the mean normalised journal score (MNJS) is 1.30, which is 30% above the world average. Finally, the PP[top20%] is 28%, meaning that 28% of the medical and health research staff publications are in the top 20% of their field.

#### Profiles

With regard to the collaboration profile, overall, a large part of the publications of Reading University (P[full]: 1,682) involve some international collaboration, followed by collaboration with other UK organisations (P[full]: 768) while only 538 of their publications show no collaboration. The impact of the three types of collaboration is above average.

The research profile shows that Reading University publishes massively in *Multidisciplinary Sciences* (mainly in PloS ONE), *Nutrition & Dietetics* and *Food Science & Technology*, followed on a distance by *Neurosciences* and *Biochemistry & Molecular Biology*. All these categories show high impact, similar to almost all categories with a publication output between 50 and 100.

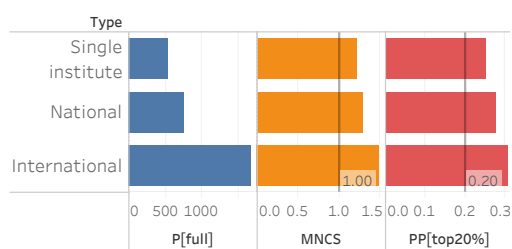
## University of Reading

## Bibliometric performance and profiles of the biomedical &amp; health research

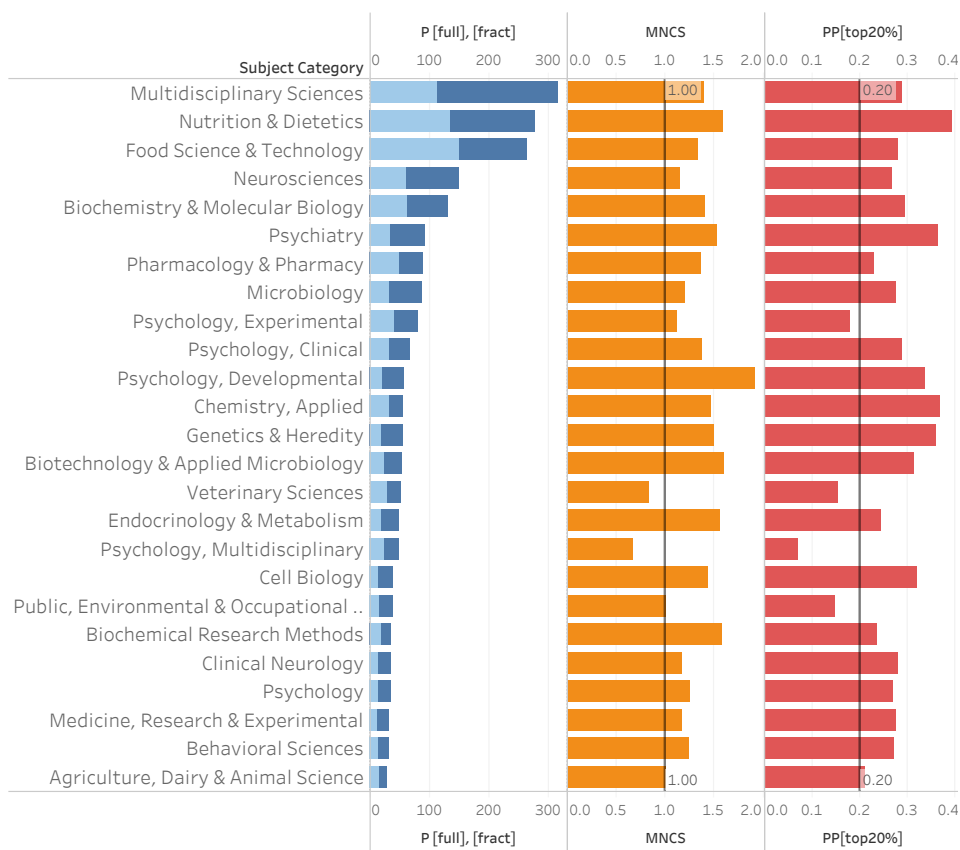
## Performance

	Article	Review	Overall
P[full]	2,664	324	<b>2,988</b>
P[fract]	1,167	164	<b>1,331</b>
PP[collab]	0.83	0.72	<b>0.82</b>
PP[int collab]	0.57	0.49	<b>0.56</b>
TCS	24,528	9,021	<b>33,549</b>
P[top20%]	731	198	<b>929</b>
PP[top20%]	0.24	0.57	<b>0.28</b>
MNCS	1.14	2.75	<b>1.33</b>
MNJS	1.20	2.04	<b>1.30</b>

## Collaboration profile



## Research profile



### 3.2.63 University of Southampton

The University of Southampton is a research university in Southampton, England. The university's origins date back to the founding of the Hartley Institution in 1862. The University of Southampton currently has 15,790 undergraduate and 6,925 postgraduate students

#### Performance

The performance table shows that a total of 11,021 publications (i.e. articles and reviews) were produced between 2011 and 2018. This output has been cited 151,376 times (TCS) (excluding self-citations). The MNCS value, including both document types, is 1.35 or, in other words, 35% higher than world average in the same fields and publication years. Their publications appear in journals with an impact value also higher than world average (MNJS: 1.29). In terms of the PP[top20%] indicator, 29% of publications published by Southampton University are among the upper top 20% of the most highly cited papers worldwide. Overall, the impact of the medical and health research staff from Southampton University is quite high.

#### Profiles

As seen in the performance table, the majority of the medical and health research staff publications are produced in collaboration (PP[collab]: 89%). When looking at the collaboration figure, we can see that although all output types are well cited, the impact is slightly higher for single institute than national collaboration and even higher for the publications involving international collaboration.

The research profile clearly show a focus on *Multidisciplinary Sciences* (mainly in *PloS ONE* and *Scientific Reports*). It also shows that Southampton University has a very high impact in *General & Internal Medicine, Pharmacology & Pharmacy* with an MNCS two times higher than world average. The highest share of publications belonging to the top 20 most cited publications are in *Endocrinology & Metabolism* and *Rheumatology* but in fact, the Uni University of Southampton has high impact in almost all categories listed.

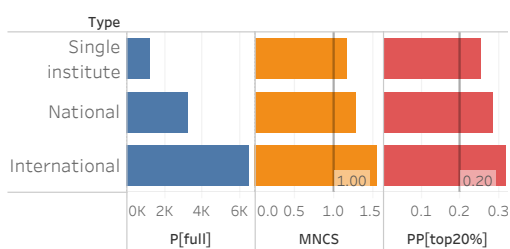
## University of Southampton

### Bibliometric performance and profiles of the biomedical & health research

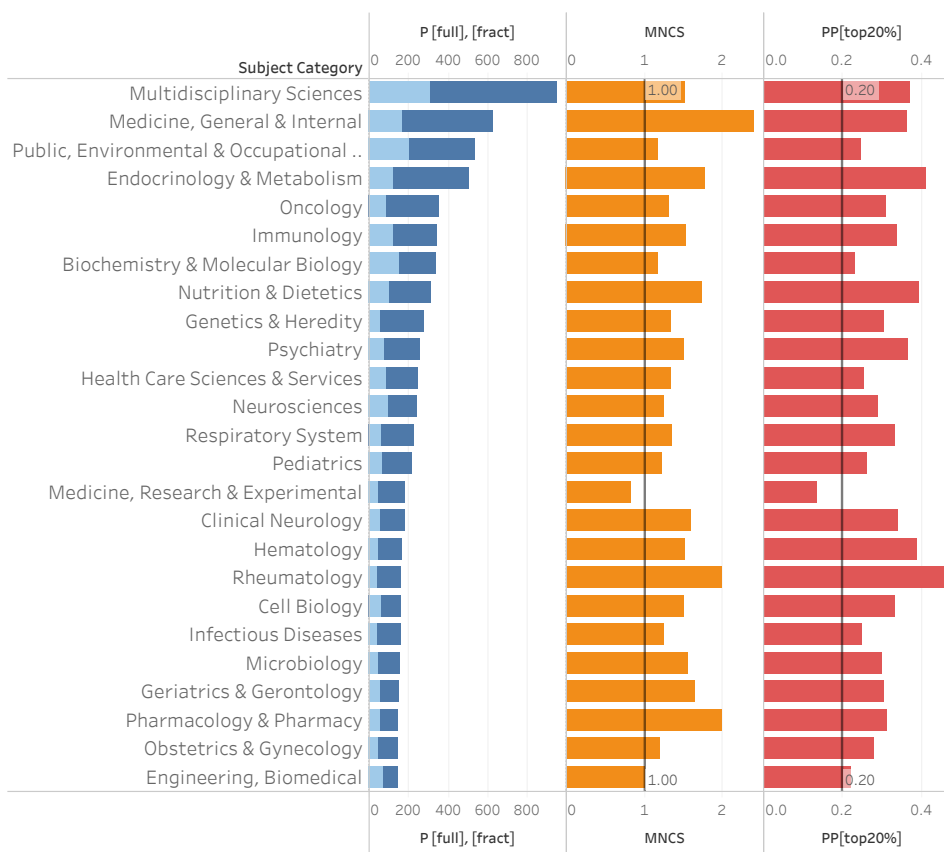
#### Performance

	Article	Review	Overall
P[full]	9,608	1,413	<b>11,021</b>
P[fract]	3,337	545	<b>3,882</b>
PP[collab]	0.89	0.86	<b>0.89</b>
PP[int collab]	0.60	0.55	<b>0.59</b>
TCS	122,979	28,536	<b>151,515</b>
P[top20%]	3,051	757	<b>3,807</b>
PP[top20%]	0.26	0.49	<b>0.29</b>
MNCS	1.21	2.24	<b>1.35</b>
MNJS	1.21	1.80	<b>1.29</b>

#### Collaboration profile



#### Research profile



### 3.2.64 University of Sheffield

The University of Sheffield is a public research university in Sheffield, South Yorkshire, England. It is formed from 50 academic departments which are organised into five faculties and an international faculty.

#### Performance

The University of Sheffield produced 10,741 publications in the period 2011–2018, with a very large share of nearly 14% in the form of reviews. Overall, Sheffield University output received more than 100,000 citations up to 2019. Normalised by field and year of publication, Sheffield has a substantially high impact, with an MNCS at 35% above the world average (MNCS: 1.35). Particularly, reviews are well cited (MNCS: 2.08). The proportion of output in the top 20% is 0.28, which is above the world average or expected value of 0.20. Finally, the journals in which Sheffield University publishes have an impact that is 26% above the world average (MNJS: 1.26). Lastly, 85% of the output is co-authored with other organisations, while 53% involved collaboration with co-authors outside UK.

#### Profiles

As can be seen in the collaboration profile, the highest share of the output involves international collaboration, which also attracts the highest number of citations, as represented by the MNCS and PP[top20%] values. It is worth mentioning that all three types of collaboration have an impact higher than world average. We can also observe that for single-institute publications, Sheffield University's MNCS and PP[top20%] values are actually rather close to the national collaborative impact. Given that this difference between single-institute and national collaboration is greater for the PP[top20%], it might well be influenced by outliers.

The research profile shows that the top subject categories are: *Multidisciplinary Sciences* and *Endocrinology & Metabolism*. The impact of the former is well above world average (MNCS: 1.52, PP[top20%]: 0.30), while the impact of the latter is extremely high (MNCS: 2.07, PP[top20%]: 0.42). Other subject categories with slightly less output (still P[full] >300 publications) but high impact (MNCS >1.5) are: *General & Internal Medicine, Health Care Sciences & Services* and *Oncology* and *Cardiac & Cardiovascular Systems*.

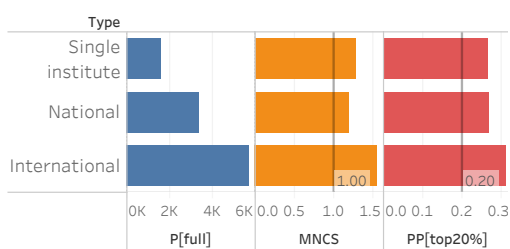
## The University of Sheffield

### Bibliometric performance and profiles of the biomedical & health research

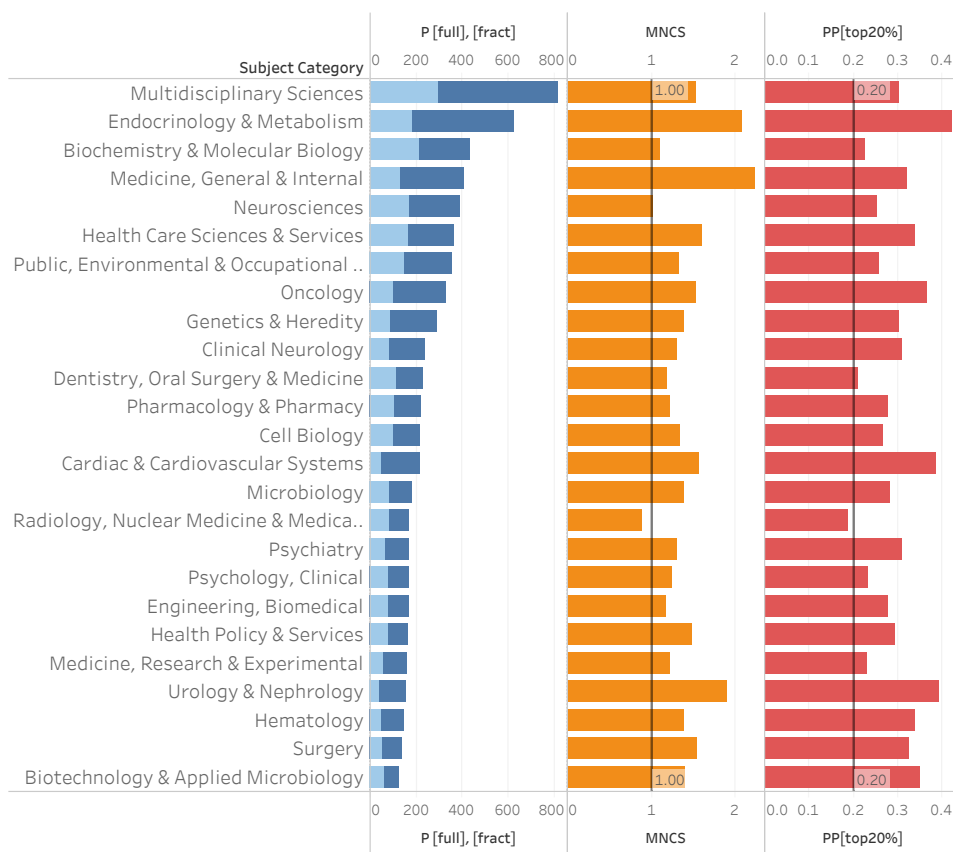
#### Performance

	Article	Review	Overall
P[full]	9,216	1,525	<b>10,741</b>
P[fract]	3,619	712	<b>4,331</b>
PP[collab]	0.86	0.77	<b>0.85</b>
PP[int collab]	0.54	0.47	<b>0.53</b>
TCS	101,115	27,069	<b>128,184</b>
P[top20%]	2,777	763	<b>3,540</b>
PP[top20%]	0.25	0.45	<b>0.28</b>
MNCS	1.21	2.07	<b>1.35</b>
MNJS	1.20	1.56	<b>1.26</b>

#### Collaboration profile



#### Research profile



### 3.2.65 University of Surrey

The University of Surrey is a public research university in Guildford, England. In the 2019–20 academic year, the University of Surrey had over 17,000 students.

#### Performance

The overall performance of Surrey University is relatively high with an MNCS of 1.22 and a PP[top20%] of 0.25 (see Performance table). In total, 3,458 publications were published by Surrey University in the period 2011–2018. Fractionally counted, this gives 1,307 publications, meaning that on average, each publication shows an affiliation of about 37% for Surrey University. The MNJS of 1.16 is somewhat lower than the MNCS, suggesting that publications of Surrey University on average have a slightly higher citation impact than other publications published in the same journals. The performance table also shows that the output received a total of 30,941 citations (TCS).

#### Profiles

As can be seen in the performance table, the PP[collab] and PP[int collab] show that 89% of publications are produced in collaboration with other institutions, and slightly more than 1 in 2 of those were produced in collaboration across borders. As seen in the collaboration figure, a small share of the output is produced by Surrey University only. Although all output types are well cited, the impact is somewhat higher for internationally co-authored publications.

The research profile shows that research at the University of Surrey is primarily published *Multidisciplinary Sciences* journals (mainly in *PloS ONE*). Furthermore, we see a focus on *Nutrition & Dietetics*. While most categories have an impact around world average, as shown by the MNCS indicator, it is worth mentioning that a few categories stand out with a high MNCS and PP[top20%]: e.g. *endocrinology & Metabolism*, *General & Internal Medicine* and *Surgery* and with few publications *Food Science & Technology*.



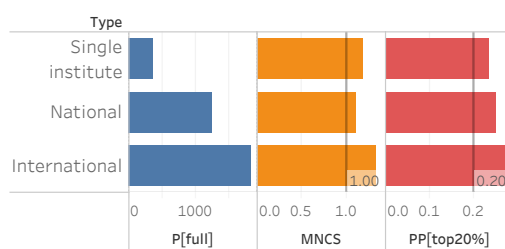
## University of Surrey

## Bibliometric performance and profiles of the biomedical &amp; health research

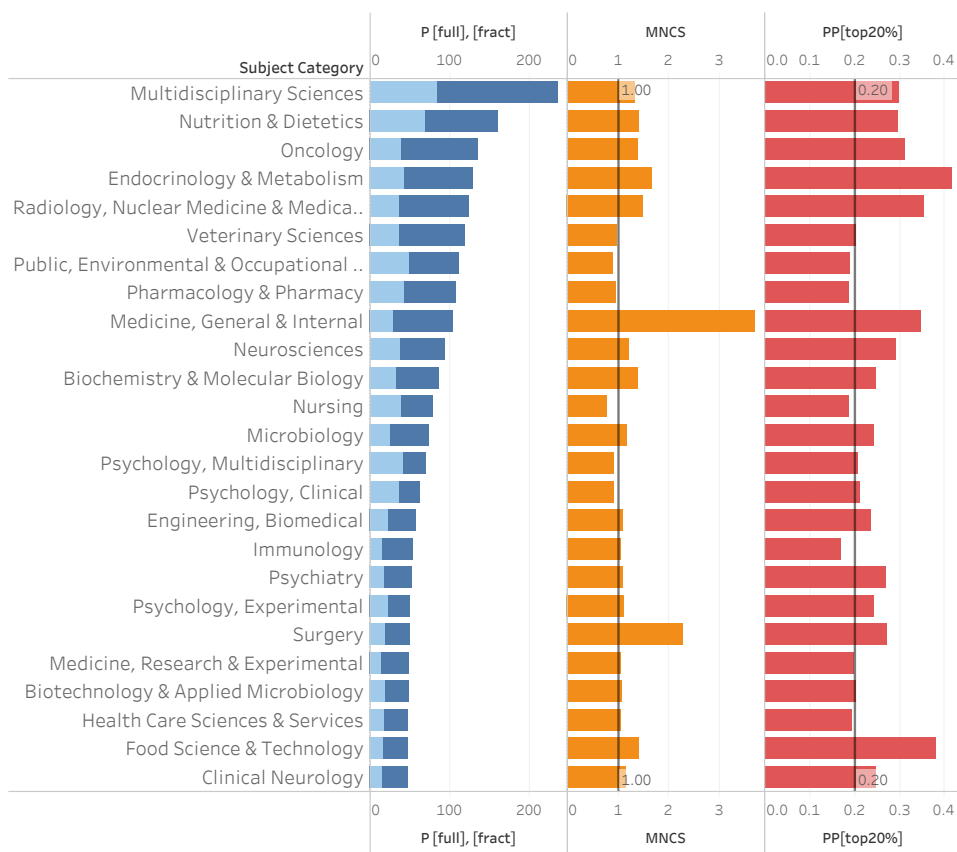
## Performance

	Article	Review	Overall
P[full]	3,066	392	<b>3,458</b>
P[fract]	1,146	160	<b>1,307</b>
PP[collab]	0.90	0.84	<b>0.89</b>
PP[int collab]	0.53	0.53	<b>0.53</b>
TCS	24,552	6,400	<b>30,952</b>
P[top20%]	809	198	<b>1,006</b>
PP[top20%]	0.23	0.43	<b>0.25</b>
MNCS	1.07	2.27	<b>1.22</b>
MNJS	1.07	1.81	<b>1.16</b>

## Collaboration profile



## Research profile



### 3.2.66 University of Sussex

The University of Sussex (UoS) is a public research university located in Falmer, Brighton, Sussex, England. It has both an international and local outlook, and staff and students come from more than 100 countries.

#### Performance

The performance table shows that a total of 4,228 publications were produced by UoS – with a distribution of 3,749 articles and 479 reviews. When looking at the normalised number of publications ( $P[\text{fract}]$ ) using fractional counting (see also methodology section), the output is assessed at 1,727. This implies that many publications are produced in collaboration with other institutions. This is also reflected by the share of publications involving co-authorship ( $PP[\text{collab}]=0.85$ ), with a share of 0.56 involving international collaboration. Furthermore, the same table shows that the output received a total of 56,502 citations (TCS). When looking at the normalised indicators using fractional counting, the MNCS value is 1.43 and the citation-based impact of the journals in which the university publishes its articles is 33% above the world average (MNJS: 1.33). The  $PP[\text{top20\%}]$  indicator shows that 29% of publications published by UoS are among the upper top 20% of the most highly cited papers worldwide. Overall, the impact indicators are quite high, especially for the reviews.

#### Profiles

As can be seen in the collaboration profile, the output distribution clearly shows that the main type involves largely international collaboration (P: 2,352). The MNCS, MNJS and  $PP[\text{top20\%}]$  values are above world average for all types of collaboration with an MNCS of 1.50 for the international collaboration followed very closely by single institution (MNCS: 1.48) and at last, national collaboration which scores slightly below the two others (MNCS: 1.28).

The research profile figure shows that the 3 most important subject categories are *Multidisciplinary Sciences* (MNCS: 2.04), *Neurosciences* (MNCS: 1.72) and *Biochemistry & Molecular Biology* (MNCS: 1.64). Other important subject categories that belong to the top 25 with a moderate number of publications but a very high impact ( $MNCS > 2.00$ ) are *General & Internal Medicine* (MNCS: 2.18) and *Psychology* (MNCS: 2.03). Overall, the impact of UoS's publications in their main fields of activity is relatively high, with the exception of the subject categories of *Public, Environmental & Occupational Health* (MNCS: 0.90), *Pharmacology & Pharmacy* (MNCS: 0.84) and *Mathematical & Computational Biology* (MNCS: 0.78) that score below the world average.

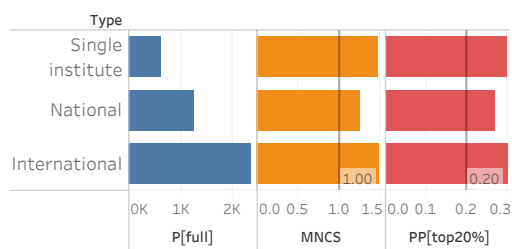
## University of Sussex

## Bibliometric performance and profiles of the biomedical &amp; health research

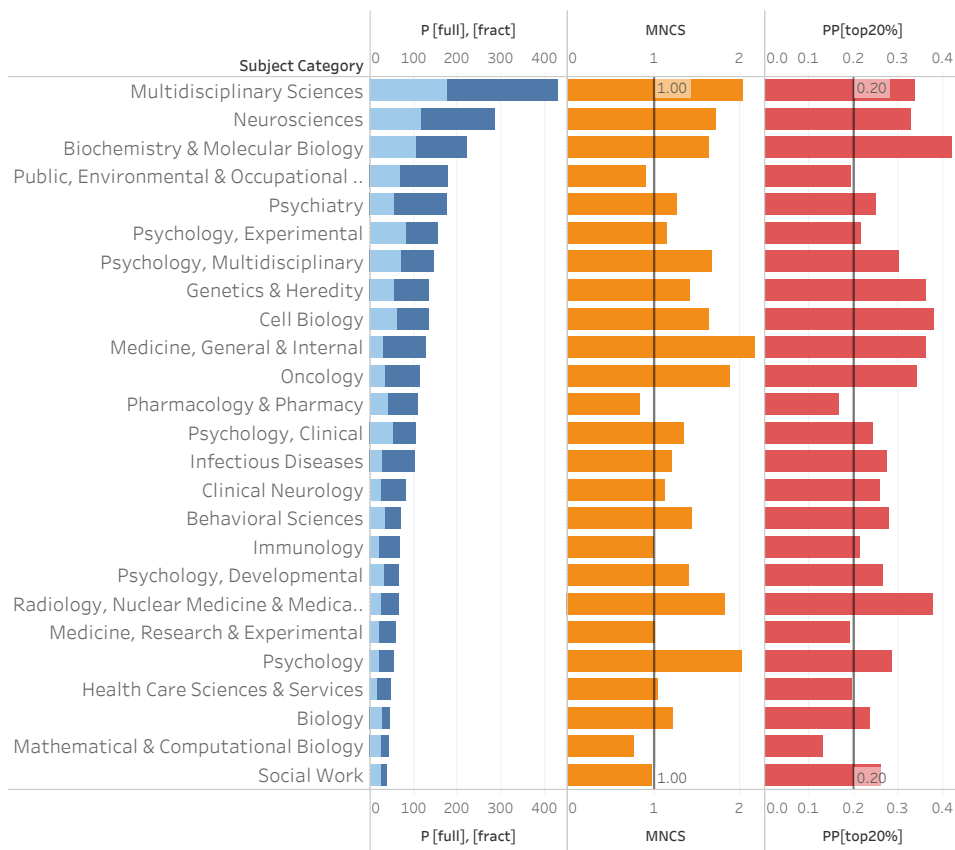
## Performance

	Article	Review	Overall
P[full]	3,750	478	<b>4,228</b>
P[fract]	1,493	233	<b>1,726</b>
PP[collab]	0.87	0.76	<b>0.85</b>
PP[int collab]	0.57	0.49	<b>0.56</b>
TCS	45,878	10,625	<b>56,503</b>
P[top20%]	1,094	255	<b>1,349</b>
PP[top20%]	0.26	0.52	<b>0.29</b>
MNCS	1.25	2.57	<b>1.43</b>
MNJS	1.20	2.18	<b>1.33</b>

## Collaboration profile



## Research profile



### 3.2.67 University of Warwick

The University of Warwick is a public research university on the outskirts of Coventry between the West Midlands and Warwickshire, England. It was founded in 1965 as part of a government initiative to expand higher education. As of 2019, Warwick has around 26,531 full-time students and 2,492 academic and research staff.

#### Performance

The indicator of output shows that 6,978 publications were produced by Warwick University. In total, those publications have been cited 94,525 times. In terms of impact, the MNCS value is very high (1.46); this means that Warwick's publications perform well above the world average (1.00) in the same fields and years, and especially for the reviews (2.61). Further, these publications appear in journals (MNJS) with a very high impact value of 1.39. In terms of the PP[top20%] indicator, approximately 30% of publications published by Warwick University are among the upper top 20% of highly cited papers worldwide.

#### Profiles

In terms of collaboration, the output distribution clearly shows that the majority involves international collaboration (P: 3,822), whereas national collaboration and single institution count respectively for 2,342 publications and 814 publications. Although the impact of the three types does not differ substantially, with an impact above world average, we can see that the impact indicators are slightly higher (both for MNCS and PP[top20%]) when co-authoring internationally.

The research profile clearly show a focus on *Multidisciplinary Sciences* (mainly in *PloS ONE* and *Scientific Reports*). Although, the University of Warwick has a broad research profile, as shown by the top subject categories such as *General & Internal Medicine*, *Biochemistry & Molecular Biology*, we can also see that the University of Warwick seems to have a focus on health care with *Public, Environmental & Occupational Health*, *Psychiatry* and *Health Care Sciences & Services* as other prominent subject categories ( $\geq 200$  publications). In these categories the impact is on the world average or well above. Looking at the output normalised by the number of organisations involved (P[fract]), we can conclude that research in *General & Internal Medicine* is particularly done in larger consortia. Research in this subject has a very high impact (both for MNCS and PP[top20%]). The impact is high in almost all categories listed.

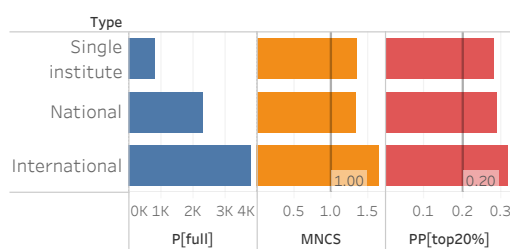
## The University of Warwick

### Bibliometric performance and profiles of the biomedical & health research

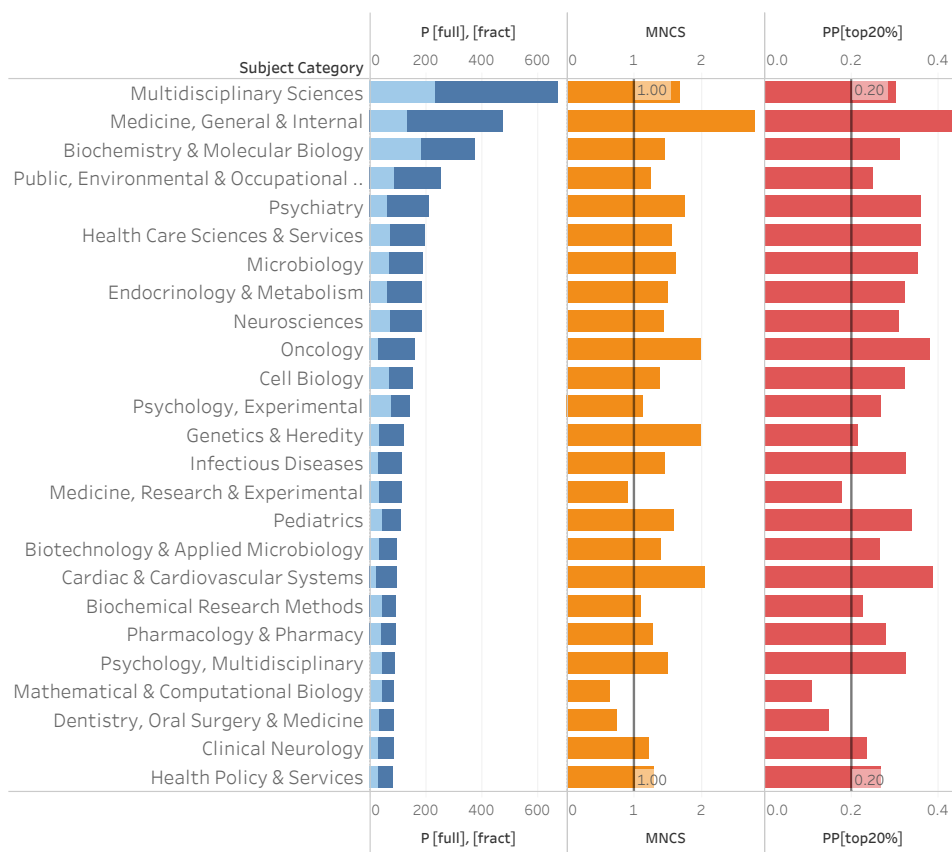
#### Performance

	Article	Review	Overall
P[full]	6,076	902	<b>6,978</b>
P[fract]	2,193	389	<b>2,582</b>
PP[collab]	0.89	0.83	<b>0.88</b>
PP[int collab]	0.56	0.45	<b>0.55</b>
TCS	77,136	17,441	<b>94,577</b>
P[top20%]	1,870	475	<b>2,345</b>
PP[top20%]	0.26	0.51	<b>0.30</b>
MNCS	1.26	2.61	<b>1.46</b>
MNJS	1.27	2.05	<b>1.39</b>

#### Collaboration profile



#### Research profile



### 3.2.68 University of York

The University of York is a collegiate research university, located in the city of York, England. Established in 1963, the university has expanded to include more than thirty departments and centres, covering a wide range of subjects.

#### Performance

The performance table shows that a total of 6,427 publications (i.e. articles and reviews) were produced between 2011 and 2018. This output has been cited 83,077 times (TCS) (excluding self-citations) up to 2019. The MNCS value, including both document types, is very high (1.46) or, in other words, 46% higher than world average in the same fields and publication years. University of York's publications appear in journals with an impact value also higher than world average (MNJS: 1.35). In terms of the PP[top20%] indicator, 29% of publications published by University of York are among the upper top 20% of the most highly cited papers worldwide.

#### Profiles

The majority of York publications are produced in collaboration (PP[collab]: 85%), with almost 1 out of 2 publications co-authored internationally (P: 3,161), followed by the output involving only UK partners (P: 2,320) and the output involving York University only which is much smaller (P: 946). As seen in the collaboration profile figure, the MNCS values are very high: from 1.21 for 'single institute' to 1.50 for 'national collaboration' and 1.71 for 'international collaboration'.

The research profile shows the top 25 subject categories based on the selected publications for York University. As the figure shows, the most important of these is *Multidisciplinary Sciences* (P: 654, MNCS: 1.77, PP[top20%]: 0.36), followed by *General & Internal Medicine* (P: 495, MNCS: 1.50, PP[top20%]: 0.42), *Public Environmental & Occupational Health* (P: 376, MNCS: 1.28, PP[top20%]: 0.25), and *Health Care Sciences & Services* (P: 365, MNCS: 1.29, PP[top20%]: 0.25). In almost all categories listed, the impact is high.

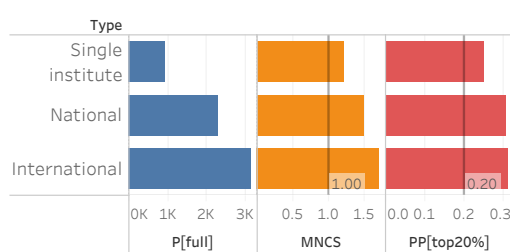
## University of York

## Bibliometric performance and profiles of the biomedical &amp; health research

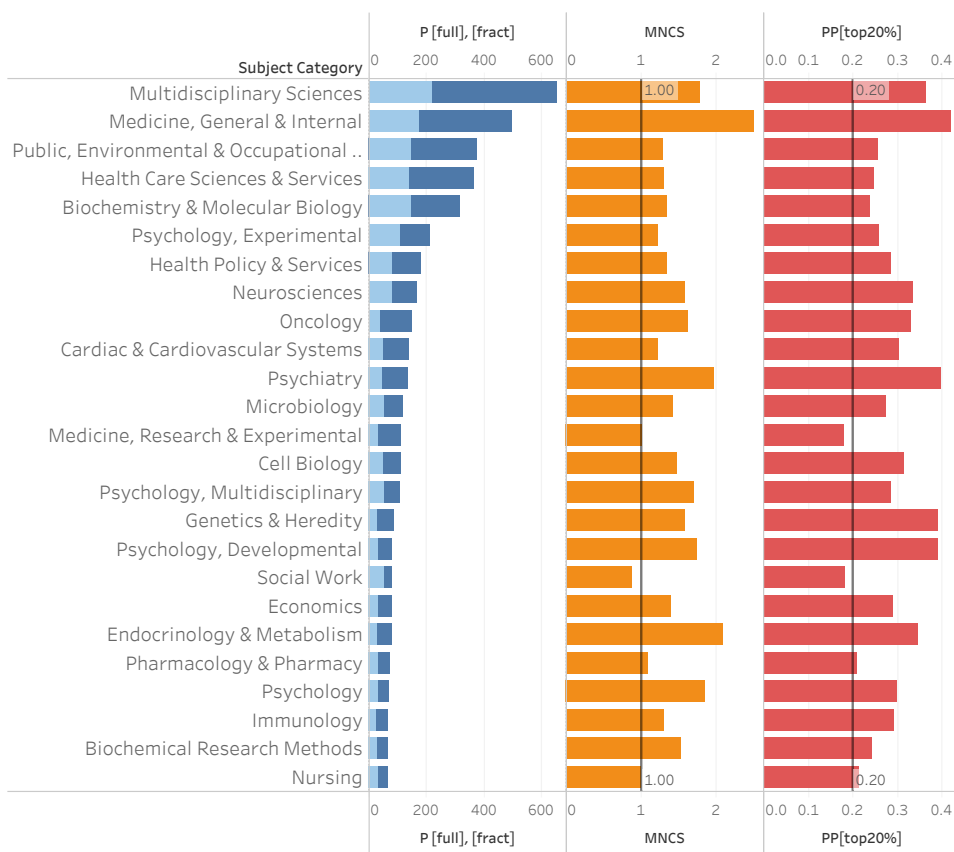
## Performance

	Article	Review	Overall
P[full]	5,495	932	<b>6,427</b>
P[fract]	2,212	409	<b>2,621</b>
PP[collab]	0.86	0.82	<b>0.85</b>
PP[int collab]	0.50	0.43	<b>0.49</b>
TCS	63,420	19,652	<b>83,072</b>
P[top20%]	1,642	494	<b>2,136</b>
PP[top20%]	0.26	0.48	<b>0.29</b>
MNCS	1.28	2.46	<b>1.46</b>
MNJS	1.25	1.90	<b>1.35</b>

## Collaboration profile



## Research profile



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## A Biomedical & Health Categories

- Allergy
- Anatomy & Morphology
- Andrology
- Anesthesiology
- Audiology & Speech-Language Pathology
- Behavioral Sciences
- Biochemical Research Methods
- Biochemistry & Molecular Biology
- Biophysics
- Biotechnology & Applied Microbiology
- Cardiac & Cardiovascular Systems
- Cell & Tissue Engineering
- Cell Biology
- Chemistry, Medicinal
- Clinical Neurology
- Critical Care Medicine
- Dentistry, Oral Surgery & Medicine
- Dermatology
- Developmental Biology
- Emergency Medicine
- Endocrinology & Metabolism
- Engineering, Biomedical
- Food Science & Technology
- Gastroenterology & Hepatology
- Genetics & Heredity
- Geriatrics & Gerontology
- Gerontology
- Health Care Sciences & Services
- Health Policy & Services
- Hematology
- Immunology
- Infectious Diseases
- Integrative & Complementary Medicine
- Materials Science, Biomaterials
- Mathematical & Computational Biology
- Medical Informatics
- Medical Laboratory Technology
- Medicine, General & Internal
- Medicine, Research & Experimental
- Microbiology
- Neuroimaging
- Neurosciences
- Nursing
- Nutrition & Dietetics
- Obstetrics & Gynecology
- Oncology
- Ophthalmology

- Orthopedics
- Otorhinolaryngology
- Parasitology
- Pathology
- Pediatrics
- Peripheral Vascular Disease
- Pharmacology & Pharmacy
- Physiology
- Primary Health Care
- Psychiatry
- Psychology, Applied
- Psychology, Biological
- Psychology, Clinical
- Psychology, Developmental
- Psychology, Experimental
- Psychology, Multidisciplinary
- Psychology, Psychoanalysis
- Public, Environmental & Occupational Health
- Radiology, Nuclear Medicine & Medical Imaging
- Rehabilitation
- Reproductive Biology
- Respiratory System
- Rheumatology
- Social Work
- Sport Sciences
- Substance Abuse
- Surgery
- Toxicology
- Transplantation
- Tropical Medicine
- Urology & Nephrology
- Veterinary Sciences
- Virology

## B Candidate organisations

Below, we list all candidates that were considered for inclusion in our study. These are organisations in the UK involved as (co-)author with at least one top 20% BMH publications. The definition of a BMH publication is based on the journal subject categories (see Annex E), while only those with 200 top 20% publications or more were included. Furthermore, publications are counted fractionally, on the basis of the number of co-authoring organisations involved.

Publications in multidisciplinary journals (*Nature*, *Science*, *Plos ONE*, etc.) were considered if they contain references to BMH journals, and counted by the fraction of the BMH references. The number of top20% publications from the period 2011 to 2018 are given between parentheses.

- University College London (6,598)
- University of Oxford (5,966)
- University of Cambridge (4,707)
- King's College London (4,040)
- Imperial College London (4,003)
- The University of Manchester (2,864)
- University of Bristol (2,021)
- University of Nottingham (1,971)
- University of Birmingham (1,948)
- University of Liverpool (1,763)
- Newcastle University (1,711)
- London School of Hygiene & Tropical Medicine (1,699)
- Queen Mary University of London (1,533)
- The University of Sheffield (1,491)
- Oxford University Hospitals NHS Foundation Trust (1,424)
- University of Leeds (1,394)
- University of Southampton (1,367)
- Cambridge University Hospitals NHS Foundation Trust (1,142)
- Guy's & St. Thomas' NHS Foundation Trust (1,066)
- University of Exeter (1,056)
- The University of Warwick (955)
- University of York (937)
- Barts Health NHS Trust (848)
- Imperial College Healthcare NHS Trust (824)
- University College London Hospitals NHS Foundation Trust (783)
- University of Leicester (751)
- University of East Anglia (654)
- Nottingham University Hospitals NHS Trust (645)
- Manchester University NHS Foundation Trust (644)
- University of Sussex (643)

- Leeds Teaching Hospitals NHS Trust (574)
- St George's, University of London (540)
- King's College Hospital NHS Foundation Trust (537)
- University of Reading (486)
- Loughborough University (480)
- The Institute of Cancer Research (479)
- University Hospital Southampton NHS Foundation Trust (472)
- Royal Veterinary College, University of London (467)
- University of East London (460)
- University Hospitals Birmingham NHS Foundation Trust (457)
- University of Bath (456)
- University of Plymouth (449)
- The Royal Marsden NHS Foundation Trust (415)
- University of Surrey (405)
- Durham University (389)
- Royal Free London NHS Foundation Trust (383)
- Great Ormond Street Hospital for Children NHS Foundation Trust (361)
- Newcastle upon Tyne Hospitals NHS Foundation Trust (356)
- University of Hull (352)
- Royal Brompton & Harefield NHS Foundation Trust (351)
- Lancaster University (337)
- University Hospitals of Leicester NHS Trust (336)
- University of Kent (319)
- Keele University (308)
- University of Greenwich (307)
- St George's University Hospitals NHS Foundation Trust (307)
- Sheffield Teaching Hospitals NHS Foundation Trust (305)
- Liverpool John Moores University (264)
- Birkbeck, University of London (255)
- South London and Maudsley NHS Foundation Trust (251)
- City, University London (249)
- Brunel University London (243)
- Aston University (240)
- London School of Economics and Political Science (240)
- North Bristol NHS Trust (236)
- University of Brighton (225)
- Moorfields Eye Hospital NHS Foundation Trust (213)
- University of Essex (196)
- Nottingham Trent University (193)
- University of the West of England Bristol (189)

- Manchester Metropolitan University (186)
- University of Portsmouth (182)
- Oxford Health NHS Foundation Trust (182)
- Northumbria University (181)
- University of Central Lancashire (175)
- Royal Holloway, University of London (175)
- Salford Royal NHS Foundation Trust (171)
- Sandwell and West Birmingham Hospitals NHS Trust (167)
- Chelsea and Westminster Hospital NHS Foundation Trust (164)
- The University of Salford (162)
- University of Hertfordshire (149)
- University of Lincoln (146)
- University of Bradford (140)
- Oxford Brookes University (137)
- Birmingham Women's and Children's NHS Foundation Trust (132)
- The Christie NHS Foundation Trust (128)
- Royal Liverpool and Broadgreen University Hospitals NHS Trust (127)
- Sheffield Hallam University (124)
- Coventry University (122)
- London North West University Healthcare NHS Trust (119)
- Norfolk and Norwich University Hospitals NHS Foundation Trust (118)
- The Open University (115)
- Bournemouth University (113)
- Royal Devon and Exeter NHS Foundation Trust (113)
- University of Huddersfield (110)
- Anglia Ruskin University (107)
- Leeds Beckett University (106)
- University Hospitals of Coventry & Warwickshire NHS Trust (105)
- Kingston University (103)
- Goldsmiths, University of London (101)
- Hull and East Yorkshire Hospitals NHS Trust (98)
- Aintree University Hospitals NHS Foundation Trust (95)
- Brighton and Sussex University Hospitals NHS Trust (91)
- Cranfield University (90)
- Papworth Hospital NHS Foundation Trust (84)
- Roehampton University (83)
- Alder Hey Children's NHS Foundation Trust (83)
- Royal National Orthopaedic Hospital NHS Trust (81)
- Teesside University (79)
- University of Westminster (79)

- University of Bedfordshire (71)
- Bradford Teaching Hospitals NHS Foundation Trust (70)
- University of Wolverhampton (70)
- Royal United Hospital Bath NHS Foundation Trust (70)
- De Montfort University (69)
- Royal Surrey County Hospital (68)
- University of Chester (65)
- Edge Hill University (65)
- South Tees Hospitals NHS Foundation Trust (64)
- Cambridgeshire & Peterborough NHS Foundation Trust (61)
- London South Bank University (61)
- University Hospitals Plymouth NHS Trust (61)
- Middlesex University (58)
- Royal Cornwall Hospitals NHS Trust (56)
- Sheffield Children's Hospital NHS Foundation Trust (54)
- Canterbury Christ Church University (53)
- Walton Centre NHS Foundation Trust (52)
- Greater Manchester Mental Health NHS Foundation Trust (46)
- School of Advanced Study, University of London (45)
- Staffordshire University (45)
- Hillingdon Hospitals NHS Foundation Trust (42)
- Liverpool Heart and Chest Hospital NHS Foundation Trust (41)
- Northumbria Healthcare NHS Foundation Trust (40)
- York Teaching Hospitals NHS Foundation Trust (39)
- East Suffolk and North Essex NHS Foundation Trust (39)
- Homerton University Hospital NHS Foundation Trust (39)
- Lancashire Teaching Hospitals NHS Foundation Trust (38)
- Royal Orthopaedic Hospital NHS Foundation Trust (37)
- University of Worcester (34)
- North West Anglia NHS Foundation Trust (33)
- University of Derby (33)
- Liverpool Women's NHS Foundation Trust (33)
- Pennine Acute Hospitals NHS Trust (32)
- The University of Sunderland (30)
- London Metropolitan University (27)
- East Kent Hospitals University NHS Foundation Trust (27)
- Sussex Partnership NHS Foundation Trust (26)

- University Hospitals of North Staffordshire NHS Trust (26)
- London Business School (25)
- The Dudley Group NHS Foundation Trust (25)
- Mid Essex Hospital Services (25)
- Gateshead Health NHS Foundation Trust (24)
- University Hospitals of North Midlands (22)
- Nottinghamshire Healthcare NHS Foundation Trust (22)
- The University of Northampton (21)
- Royal Wolverhampton NHS Trust (21)
- St Mary's University, Twickenham (21)
- York St John University (21)
- University of Winchester (20)
- Whittington Health NHS Trust (20)
- Birmingham and Solihull Mental Health NHS Foundation Trust (20)
- Clatterbridge Cancer Centre NHS Foundation Trust (19)
- University of Gloucestershire (19)
- Birmingham City University (19)
- Manchester Academic Health Science Centre (19)
- St Helens and Knowsley Hospitals NHS Trust (18)
- Liverpool Hope University (18)
- University of Chichester (18)
- Torbay and South Devon NHS Foundation Trust (18)
- Harper Adams University (17)
- Croydon Health Services NHS Trust (17)
- University Hospitals of Morecambe Bay NHS Foundation Trust (17)
- East Lancashire Hospitals NHS Trust (17)
- University of West London, UWL (16)
- Luton and Dunstable University Hospital (16)
- University of Bolton (16)
- The University of Buckingham (15)
- Shrewsbury and Telford Hospital NHS Trust (15)
- City Hospitals Sunderland NHS Foundation Trust (13)
- Royal Agricultural University (13)
- SOAS, University of London (12)
- Blackpool Teaching Hospitals NHS Foundation Trust (12)
- United Lincolnshire Hospitals NHS Trust (12)
- Worcestershire Acute Hospitals NHS Trust (11)
- Bolton NHS Foundation Trust (10)

- James Paget University Hospitals NHS Foundation Trust (10)
- County Durham and Darlington NHS Foundation Trust (10)
- Leeds Trinity University (9)
- Bath Spa University (9)
- Solent University (9)
- University of Cumbria (8)
- West London NHS Trust (7)
- Birmingham Community Healthcare Trust (7)
- Heythrop College, University of London (6)
- South-West London & St. George's Mental Health NHS Trust (6)
- UCL Health Partners (6)
- Southern Health and Social Care Trust (6)
- Newman University (5)
- Trinity Laban Conservatoire of Music and Dance (5)
- Chesterfield Royal Hospital NHS Foundation Trust (5)
- Guildhall School of Music and Drama (5)
- Buckinghamshire New University (4)
- King's College Health Partners (4)
- University of St Mark & St John (4)
- North-Lincolnshire and Goole Hospitals NHS Foundation Trust (3)
- University of Ulster (3)
- Writtle University College (3)
- The University of Edinburgh (3)
- Cardiff University (2)
- University of the Arts London (2)
- University of Aberdeen (2)
- University of the West of Scotland (2)
- University Suffolk (2)
- Royal College of Art (2)
- Cambridge University Health Partners (2)
- NHS Lanarkshire (1)
- Aberystwyth University (1)
- Imperial Academic Health Science Centre (1)



## C Methodology

In this annex we provide more detail about the methodology developed at CWTS and applied in this study.

### Database Structure

At CWTS, we calculate bibliometric indicators based on an in-house version of the Web of Science (WoS) online database, which will be referred to as the CI-system. The WoS is a bibliographic database that covers publications of about 12,000 journals and each of these journals is assigned to one or more Journal Subject Categories (JSC). Each publication in the CI-system has a document type. The most frequently occurring document types are 'articles', 'reviews', 'proceeding papers', 'corrections', 'editorial material', 'letters', 'meeting abstracts' and 'news items'. In this report, we only consider document types 'articles' and 'reviews'. In limiting the analysis to these two types of publications, we consider that these documents reflect most of the original scientific output in a field.

The CI-system is an improved and enhanced version of the WoS database versions of the Science Citation Index (SCI), Social Science Citation Index (SSCI), and Arts & Humanities Citation Index (A&HCI). The CI-system implements a publication-based field classification which clusters publications into research areas based solely on citation relations (Waltman and van Eck, 2012) (more detail in Annex D). One important advantage of this publication-level classification system is that it allows for a taxonomy of science that is more detailed and better matches the current structure of scientific research. This not only reduces classification bias but is also essential for calculating field-normalised indicators (Ruiz-Castillo and Waltman, 2015).

Moreover, in this study we include citation data up to 2019. Please note that publications require at least one full year to receive citations in order to make robust calculations of citation impact indicators. For this reason, we will work with publication output up to and including 2018, counting citations up to and including 2019.

### Citation Window, Counting Method and Field Normalisation

#### *Citation window*

Several indicators are available for measuring the average scientific impact of the publications of a research unit. These indicators are all based on the idea of counting the number of times the publications of a unit have been cited. Citations can be counted using either a fixed-length citation window or a variable-length citation window. In the case of a fixed-length citation window, only citations

received within a fixed time period (e.g. four years fixed window) are counted. This means that older publications have a longer citation window than more recent publications. The main advantage of a fixed-length citation window is that it is possible to meaningfully analyse the trend patterns of the non-normalised impact indicators. A variable-length window, on the other hand, uses all the citations that are available in the database until a fixed point in time, which not only yields higher citation counts (depending on the window length), but also more robust impact measurements. When using a variable-length citation window, impact indicators such as the average impact (MCS) and the total impact score (TCS) may systematically present a decreasing pattern.

In this study, we use a variable-length window for the overall period of the analysis (2011–2018) and we include citations accumulated up to a fixed point in time (2019).

#### *Self-citations*

In the calculation of advanced citation impact indicators, we disregard self-citations. A citation is considered a self-citation if the cited publication and the citing publication have at least one author (i.e. last name and initials) in common. The main reason for excluding self-citations is that they often have a different purpose from ordinary citations. Specifically, self-citations may indicate how different publications of a researcher build on one another, or they may serve as a mechanism for self-promotion rather than for indicating relevant related work. Self-promotion can in turn be used to manipulate the impact of a publication in terms of the number of citations received. Excluding self-citations from the analysis effectively reduces the sensitivity of impact indicators to potential manipulation. In so doing, impact indicators can be interpreted as the impact of researchers' work on other members of the scientific community rather than on his or her own work.

#### *Field Normalisation*

There can be quite large differences in citation practices in different scientific fields. Field normalisation is about correcting for differences in citation practices between different scientific fields. The goal of field normalisation is to develop citation-based indicators that allow for valid between-field comparisons.

In this report, we will use our in-house publication-based classification system of science to define the scientific fields that are used in this normalisation process. This system has three major advantages compared to the conventional journal-based classification systems of science: Web of Science Journal Subject Categories and Scopus' All Science Journal Classification:

- Proper granularity in terms of fields.
- Fields are defined at the level of publications citing each other, not on allocating complete journals to field(s) where inaccuracies are introduced.

- Publications from journals like Nature, Science, PLoS ONE (multidisciplinary journals) are allocated to the field they actually belong to and not to the artificial journal field 'Multidisciplinary Sciences'.

The reasons to use this publication-based classification are further explained in Annex D.

#### *Counting method*

Counting methods are about the way in which co-authored publications are handled. For instance, if a publication is co-authored by researchers from two countries, should the publication be counted as a full publication for each country or should it be counted as half a publication for each of them? In this study, we use both full and fractional counting. Full counting means that if a publication is co-authored by multiple organisations, that publication counts multiple times, once for every organisation, regardless of the weight of their contribution. In this report, we use mainly the full counted publications for output and fractionalised for impact measures.

## **D** Publication level classification

The CWTS citation database is a bibliometric version of Web of Science (WoS). One of the special features of this database is the publication-based classification. This classification is an alternative to the WoS journal classification, the WoS subject categories. The reason to have this publication-based classification is the problems we encounter using the journal classification for particular purposes. We discern the following as the most prominent ones.

### **D.1 Journal scope (including multi-disciplinary journals)**

A journal classification introduces sets of journals to represent a class, in this case a subject category. This implies that journals have a similar scope. They do not need to be comparable with regard to volume (number of articles per year) but they should represent a similar specialisation. This is not the case, of course. Journals represent a very broad spectrum. There are very specialist journals (e.g., *Scientometrics*) and very general ones (e.g., *Nature* or *Science* but also *British Medical Journal*). The classification scheme can therefore not be very specialised. In WoS, a subject category Multi-disciplinary hosts the very general ones so that a bibliometric analysis of, for instance, the Social Sciences or Nanotechnology, using this classification, will not take papers in *Nature* into consideration.

### **D.2 Granularity of the WoS subject categories**

The WoS journal classification scheme contains 255 elements. As such it is a stable system. In many cases however, it appears that these 255 subject categories are insufficient to be used for proper field analyses. The problem, however, is that the granularity of the system looks somewhat arbitrary. 'Biochemistry & Molecular Biology' on the one hand and 'Ornithology' on the other, for instance, represent rather different aggregates of research. This is illustrated by the number of journals in each of them. Where the 'Biochemistry & Molecular Biology' category contains almost 500 journals, 'Ornithology' has only 27. We acknowledge that there is no perfect granularity, but we argue that in the WoS subject categories the differences are really too big. A classification based on more objective grounds does not solve this problem but at least is transparent.

### **D.3 Multiple assignment of journals to categories**

In journal classifications from multi-disciplinary databases, journals are assigned to more than one category. Journals often have broader scopes than the categories allow. Also here there are large differences between categories. In the example we used before, 'Biochemistry & Molecular Biology,' journals are on average assigned to almost 2 categories. This means that (on average) each journal in this category is also assigned to one other category. For the more specialist category

of 'Ornithology', the average is 1. This means that in this category all journals are assigned to this category only. If publications in journals with a multiple assignment would always cover the categories at stake, this should not necessarily be a problem. However, it mostly means that such journals structurally contain publications from the different categories. Therefore, publications may be assigned to two categories although they belong to just one of them.

## D.4 The CWTS publication-based classification scheme

CWTS has developed an advanced alternative for the Web of Science journal classification. It counters three major issues:

1. Journal scope (including multi-disciplinary journals)
2. Granularity of the WoS subject categories
3. Multiple assignment of journals to categories

The CWTS publication-based classification is developed as described in [Waltman and van Eck \(2012\)](#). Since the first version there have been yearly updates of the system. The main characteristics of the classification are as follows.

### *Publication to publication citation clustering*

Clusters of publications are created on the basis of citations from one publication to another. Tens of millions of publications have been processed. The clusters contain publications from multiple years (2000–2019). Each publication is assigned to one cluster only at each level. A cluster is considered, and in many cases validated as, representative for disciplines, research areas, fields or sub-fields. For each cluster, we can calculate growth indices pointing at changing research focus over time.

### *Multi-level clustering*

The classification scheme has at present three different levels. The clusters are hierarchically organised. Currently we discern the following levels.

1. A top level of 25 clusters (fields)
2. A second level of around 800 clusters (sub-fields)
3. A third level of more than 4,000 clusters (research areas or micro-fields)

## E Web of Science Categories

- Acoustics
- Agricultural Economics & Policy
- Agricultural Engineering
- Agriculture, Dairy & Animal Science
- Agriculture, Multidisciplinary
- Agronomy
- Allergy
- Anatomy & Morphology
- Andrology
- Anesthesiology
- Anthropology
- Archaeology
- Architecture
- Area Studies
- Art
- Asian Studies
- Astronomy & Astrophysics
- Audiology & Speech-Language Pathology
- Automation & Control Systems
- Behavioral Sciences
- Biochemical Research Methods
- Biochemistry & Molecular Biology
- Biodiversity Conservation
- Biology
- Biophysics
- Biotechnology & Applied Microbiology
- Business
- Business, Finance
- Cardiac & Cardiovascular Systems
- Cell & Tissue Engineering
- Cell Biology
- Chemistry, Analytical
- Chemistry, Applied
- Chemistry, Inorganic & Nuclear
- Chemistry, Medicinal
- Chemistry, Multidisciplinary
- Chemistry, Organic
- Chemistry, Physical
- Classics
- Clinical Neurology
- Communication
- Computer Science, Artificial Intelligence
- Computer Science, Cybernetics
- Computer Science, Hardware & Architecture
- Computer Science, Information Systems
- Computer Science, Interdisciplinary Applications
- Computer Science, Software Engineering
- Computer Science, Theory & Methods
- Construction & Building Technology
- Criminology & Penology
- Critical Care Medicine

- Crystallography
- Cultural Studies
- Dance
- Demography
- Dentistry, Oral Surgery & Medicine
- Dermatology
- Development Studies
- Developmental Biology
- Ecology
- Economics
- Education & Educational Research
- Education, Scientific Disciplines
- Education, Special
- Electrochemistry
- Emergency Medicine
- Endocrinology & Metabolism
- Energy & Fuels
- Engineering, Aerospace
- Engineering, Biomedical
- Engineering, Chemical
- Engineering, Civil
- Engineering, Electrical & Electronic
- Engineering, Environmental
- Engineering, Geological
- Engineering, Industrial
- Engineering, Manufacturing
- Engineering, Marine
- Engineering, Mechanical
- Engineering, Multidisciplinary
- Engineering, Ocean
- Engineering, Petroleum
- Entomology
- Environmental Sciences
- Environmental Studies
- Ergonomics
- Ethics
- Ethnic Studies
- Evolutionary Biology
- Family Studies
- Film, Radio, Television
- Fisheries
- Folklore
- Food Science & Technology
- Forestry
- Gastroenterology & Hepatology
- Genetics & Heredity
- Geochemistry & Geophysics
- Geography
- Geography, Physical
- Geology
- Geosciences, Multidisciplinary
- Geriatrics & Gerontology
- Gerontology
- Green & Sustainable Science & Technology
- Health Care Sciences & Services
- Health Policy & Services
- Hematology
- History

- History & Philosophy Of Science
- History Of Social Sciences
- Horticulture
- Hospitality, Leisure, Sport & Tourism
- Humanities, Multidisciplinary
- Imaging Science & Photographic Technology
- Immunology
- Industrial Relations & Labor
- Infectious Diseases
- Information Science & Library Science
- Instruments & Instrumentation
- Integrative & Complementary Medicine
- International Relations
- Language & Linguistics
- Law
- Limnology
- Linguistics
- Literary Reviews
- Literary Theory & Criticism
- Literature
- Literature, African, Australian, Canadian
- Literature, American
- Literature, British Isles
- Literature, German, Dutch, Scandinavian
- Literature, Romance
- Literature, Slavic
- Logic
- Management
- Marine & Freshwater Biology
- Materials Science, Biomaterials
- Materials Science, Ceramics
- Materials Science, Characterization & Testing
- Materials Science, Coatings & Films
- Materials Science, Composites
- Materials Science, Multidisciplinary
- Materials Science, Paper & Wood
- Materials Science, Textiles
- Mathematical & Computational Biology
- Mathematics
- Mathematics, Applied
- Mathematics, Interdisciplinary Applications
- Mechanics
- Medical Ethics
- Medical Informatics
- Medical Laboratory Technology
- Medicine, General & Internal
- Medicine, Legal
- Medicine, Research & Experimental
- Medieval & Renaissance Studies
- Metallurgy & Metallurgical Engineering
- Meteorology & Atmospheric Sciences
- Microbiology



- Microscopy
- Mineralogy
- Mining & Mineral Processing
- Multidisciplinary Sciences
- Music
- Mycology
- Nanoscience & Nanotechnology
- Neuroimaging
- Neurosciences
- Nuclear Science & Technology
- Nursing
- Nutrition & Dietetics
- Obstetrics & Gynecology
- Oceanography
- Oncology
- Operations Research & Management Science
- Ophthalmology
- Optics
- Ornithology
- Orthopedics
- Otorhinolaryngology
- Paleontology
- Parasitology
- Pathology
- Pediatrics
- Peripheral Vascular Disease
- Pharmacology & Pharmacy
- Philosophy
- Physics, Applied
- Physics, Atomic, Molecular & Chemical
- Physics, Condensed Matter
- Physics, Fluids & Plasmas
- Physics, Mathematical
- Physics, Multidisciplinary
- Physics, Nuclear
- Physics, Particles & Fields
- Physiology
- Planning & Development
- Plant Sciences
- Poetry
- Political Science
- Polymer Science
- Primary Health Care
- Psychiatry
- Psychology
- Psychology, Applied
- Psychology, Biological
- Psychology, Clinical
- Psychology, Developmental
- Psychology, Educational
- Psychology, Experimental
- Psychology, Mathematical
- Psychology, Multidisciplinary
- Psychology, Psychoanalysis
- Psychology, Social
- Public Administration
- Public, Environmental & Occupational Health
- Quantum Science & Technology
- Radiology, Nuclear Medicine & Medical Imaging

- Regional & Urban Planning
- Rehabilitation
- Religion
- Remote Sensing
- Reproductive Biology
- Respiratory System
- Rheumatology
- Robotics
- Social Issues
- Social Sciences, Biomedical
- Social Sciences, Interdisciplinary
- Social Sciences, Mathematical Methods
- Social Work
- Sociology
- Soil Science
- Spectroscopy
- Sport Sciences
- Statistics & Probability
- Substance Abuse
- Surgery
- Telecommunications
- Theater
- Thermodynamics
- Toxicology
- Transplantation
- Transportation
- Transportation Science & Technology
- Tropical Medicine
- Urban Studies
- Urology & Nephrology
- Veterinary Sciences
- Virology
- Water Resources
- Women's Studies
- Zoology