EDITOR'S CHOICE

Chronic disease must top the agenda

Unhelpful myths include that these are diseases of affluence, that they are not a cause of premature death, and that there are no cost effective interventions

The *BMJ* archive has been put to various good uses since it was digitised and made available on bmj.com two years ago (*BMJ* 2010:341;c6898, c6738, c5168). This week, Mangesh Thorat and colleagues present a brief summary of their findings after searching the archive from 1840 for mentions of four communicable and four non-communicable diseases (p 329). The temporal trends are not surprising and nicely illustrate a story of our time—the past 50 years have been the era of chronic disease.

If the *BMJ* does its job properly over the next 50 years, the trajectory of coverage of chronic disease is likely to climb even more steeply. In their editorial Peter Piot and Shah Ebrahim report that already nearly two thirds of global deaths are attributable to chronic diseases and that the number of deaths from chronic diseases is projected to rise dramatically between now and 2030 (p 293).

Given the size of the challenge, why is chronic disease not at the top of the world's health and political agendas? Piot and Ebrahim blame unhelpful myths. These include that chronic diseases are due to affluence, that they are not a cause of premature death, and that there are no cost effective interventions. But neglect is also due to lack of leadership, they say, and the absence of powerful community activists.

Successful lobbying for change tends to be modelled on the individual disease approach exemplified by the HIV/AIDS movement. But the major chronic diseases—cardiovascular diseases, cancers, respiratory diseases, and diabetes—are a heterogeneous group. They share underlying lifestyle and societal causes that require political, fiscal, and legal mechanisms more than intervention at the level of the individual. Even so, Piot and Ebrahim still feel that civil society, patients, and survivors of cancer can be powerful agents for change.

What can we do between now and September's UN General Assembly meeting on chronic diseases? Piot and Ebrahim make an urgent call for us to develop a concrete "ask"—a call to action for UN member states. Their own ask includes full implementation of the Framework Convention on Tobacco Control; reduction of salt, fat, and sugar in processed foods; and specific goals and funding for reducing the burden of chronic disease. What else do you think should be on the list if we are to push chronic disease to the top of the world's agenda?

As for the UK, it turns out that our outcomes for heart disease and cancer are not as bad as some politicians would have us believe (p 310). But there is clearly more that we can and must do. Exactly where to target our efforts for primary prevention of heart disease is a continuing debate, if the articles in this week's journal are anything to go by. Aroon Hingorani and Harry Hemingway argue for a population approach (p 313), but Kamlesh Khunti and colleagues are dubious about the proposed NHS health checks (p 316). In his editorial, John Reckless suggests that the NHS health checks should not preclude other efforts to target people at high risk (p 291). Watch this space.

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1 Higgins BJ, Johanson JF. Epidemiology of constipation in North America: a systematic review. *Am J Gastroenterol* 2004;99:750-9.
2 Abbott D, Atere-Roberts N, Williams A, Oteng-Ntim E, Chappell LC. Obstetric anal sphincter injury. *BMJ* 2010;341:140-5.
3 Ryhammer AM, Laurberg S, Sorensen FH. Effects of age on anal function in normal women. *Int J Colorectal Dis* 1997;12:225-9.
4 Higgins PD, Johanson JF. Epidemiology of constipation in North America: a systematic review. *Am J Gastroenterol* 2004;99:750-9.
5 Nelson R, Norton N, Cautley E, Furner S. Community-based prevalence of anal incontinence. *JAMA* 1995;274:559-61.
6 Wallner C, van Wissen J, Maas CP, Dabhoiwala NF, DeRuiter MC, Lamers WH. The contribution of the levator ani nerve and the pudendal nerve to the innervation of the levator ani muscles: a study in human foetuses. *Eur Urol* 2008;54:1136-42.
7 Jorge JM, Wexner SD. Etiology and management of fecal incontinence. *Dis Colon Rectum* 1993;36:77-97.
8 Hallan RI, Marzouk DE, Waldron DJ, Womack NR, Williams NS. Comparison of digital and manometric assessment of anal sphincter function. *Br J Surg* 1989;76:973-5.
9 Read M, Read NW, Barber DC, Duthie HL. Effects of loperamide on anal sphincter function in patients complaining of chronic diarrhea with fecal incontinence and urgency. *Dig Dis Sci* 1982;27:807-14.
10 Lauti M, Scott D, Thompson-Fawcett MW. Fibre supplementation in addition to loperamide for fecal incontinence in adults: a randomized trial. *Colorectal Dis* 2008;10:553-62.
11 Madoff RD, Parker SC, Varma MG, Lowry AC. Faecal incontinence in adults. *Lancet* 2004;364:621-32.
12 Shorvon PJ, McHugh S, Diamant NE, Somers, Stevenson GW. Defecography in normal volunteers: results and implications. *Gut* 1989;30:1737-49.
13 Myers JO, Rothenberger DA. Sugar in the reduction of incarcerated prolapsed bowel. Report of two cases. *Dis Colon Rectum* 1991;34:416-8.
14 Madiba TE, Baig MK, Wexner SD. Surgical management of rectal prolapse. *Arch Surg* 2005;140:63-73.
15 Tou S, Brown SR, Malik AI, Nelson RL. Surgery for complete rectal prolapse in adults. *Cochrane Database Syst Rev* 2008;4:CD001758.
16 Association of Coloproctology of Great Britain and Ireland. Randomised trial of rectal prolapse surgery (PROSPER). National Research Register and ISRCTN Register (first accessed 2000). ISRCTN01911755.
17 Sajid MS, Siddqui MR, Baig MK. Open vs laparoscopic repair of full-thickness rectal prolapse: a re-meta-analysis. *Colorectal Dis* 2010;12:515-25.
18 Wijffels N, Cunningham C, Dixon A, Greenslade G, Lindsey I. Laparoscopic anterior rectopexy for external rectal prolapse is safe and effective in the elderly. Does this make perineal procedures obsolete? *Colorectal Dis* 2010, published online 20 Feb.
19 Orrom WJ, Bartolo DC, Miller R, Mortensen NJ, Roe AM. Rectopexy is an ineffective treatment for obstructed defaecation. *Dis Colon Rectum* 1991;34:41-6.
20 Karulf RE, Madoff RD, Goldberg SM. Rectal prolapse. *Curr Probl Surg* 2001;38:771-832.
21 Portier G, Iovino F, Lazorthes F. Surgery for rectal prolapsed: Orr-Loygue ventral rectopexy with limited dissection prevents postoperative-induced constipation without increasing recurrence. *Dis Colon Rectum* 2006;49:1136-40.
22 Boons P, Collinson R, Cunningham C, Lindsey I. Laparoscopic ventral rectopexy for external rectal prolapse improves constipation and avoids de novo constipation. *Colorectal Dis* 2010;12:526-32
23 Slawik S, Soulsby R, Carter H, Payne H, Dixon AR. Laparoscopic ventral rectopexy, posterior colporrhaphy and vaginal sacrocolpopexy for the treatment of recto-genital prolapse and mechanical outlet obstruction. *Colorectal Dis* 2008: 138-43.
24 D'Hoore A, Penninckx F. Laparoscopic ventral recto(colpo)pexy for rectal prolapse: surgical technique and outcome in 109 patients. *Surg Endosc* 2006;20:1919-23.
25 Khaikin M, Wexner SD. Treatment strategies in obstructed defaecation and fecal incontinence. *World J Gastroenterol* 2006;12:3168-73.
26 Bassotti G, Chistolini F, Sietchiping-Nzepa F, de Roberto G, Morrell A, Chiaroni G. Biofeedback for pelvic floor dysfunction in constipation. *BMJ* 2004;328:393-6.
27 Koh CE, Young CJ, Young JM, Solomon MJ. Systematic review of randomized controlled trials of the effectiveness of biofeedback for pelvic floor dysfunction. *Br J Surg* 2008;95:1079-87.
28 Norton C, Cody JD, Hosker G. Biofeedback and/or sphincter exercises for the treatment of faecal incontinence in adults. *Cochrane Database Syst Rev* 2006;3:CD002111.
29 Collinson R, Wijffels N, Cunningham C, Lindsey I. Laparoscopic ventral rectopexy for internal rectal prolapse: short-term functional results. *Colorectal Dis* 2010;12:97-104.
30 Pescatori M, Gagliardi G. Postoperative complications after procedure for prolapsed haemorrhoids (PPH) and stapled transanal rectal resection (STARR) procedures. *Tech Coloproctol* 2008;12:7-19.
31 Jayne DG, Schwandner O, Stuto A. Stapled transanal resection for obstructed defecation syndrome: one year results of the European STARR registry. *Dis Colon Rectum* 2009;52:1205-12.
32 Lehur PA, Stuto A, Fantoli M, Villani RD, Queralto M, Lazorthes F, et al. Outcomes of stapled transanal rectal resection vs biofeedback for the treatment of outlet obstruction associated with rectal intussusception and rectocele: a multicentre, randomized, controlled trial. *Dis Colon Rectum* 2008;51:1611-8.
33 Jarrett M, Wijffels N, Slater A, Cunningham C, Lindsey I. Enterocele is a marker of severe pelvic floor weakness. *Colorectal Dis* 2009, published online Aug 5.
34 Maher C, Feiner B, Baessler K, Adams EJ, Hagen S, Glazener CM. Surgical management of pelvic organ prolapse in women. *Cochrane Database Syst Rev* 2010;4:CD004014.
35 Yamana T, Takahashi T, Iwadare J. Clinical and physiological outcomes after transvaginal rectocele repair. *Dis Colon Rectum* 2006;49:661-7.
36 Tsujinaka S, Tsujinaka Y, Matsuo K, Akagi K, Hamahata Y. Changes in bowel function following transanal and transvaginal repair. *Dig Surg* 2007;24:46-53.

Analysis of temporal trends in the *BMJ* archive

We searched the 170 year electronic archive of the *BMJ* for mentions of four communicable diseases (malaria, cholera, influenza, and tuberculosis) and four non-communicable diseases (ischaemic heart disease, hypertension, obesity, and lung cancer). Titles and abstracts were searched, and further manual searches were made of research articles.

The number of research articles on communicable diseases fluctuated with the incidence of the individual diseases (such as with influenza pandemics), whereas the number of articles on non-communicable diseases increased substantially in the second half of the 20th century (figure (note the fivefold difference in scale between the two plots)). Increased numbers of research articles on heart disease and obesity in the 1960s and 1970s were preceded by an increase in non-research articles on these topics.

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This is an abridged version of an entry from last year's competition for the most creative use of the *BMJ* online archive. The authors' data generated for their competition entry are available at http://tinyurl.com/ydx4tju

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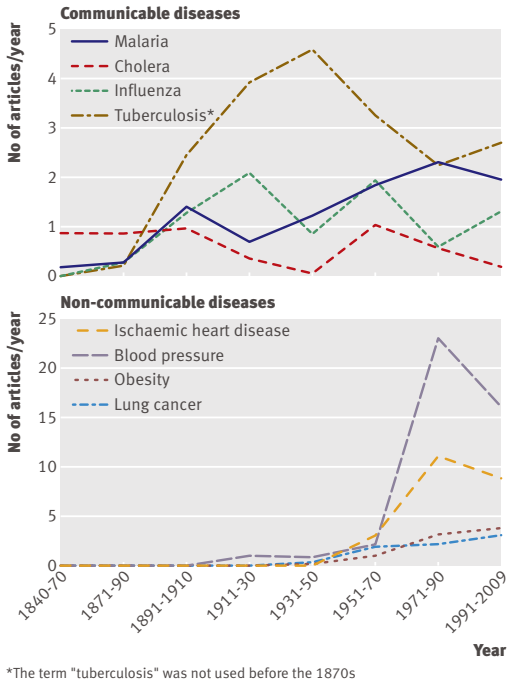

*The term "tuberculosis" was not used before the 1870s

169 years of medical research: An analysis of the temporal trends in the BMJ Archive.

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Abstract

Background:

Archives of the British Medical journal are now available as an electronic database and articles published in the BMJ could be used to capture the historical trends of interest in medical subjects over past 170 years, we sought to study some of these trends.

Method:

We selected 10 search terms: 4 communicable diseases, 4 non-communicable diseases, and 2 interventions and used 'advanced search' feature of the BMJ archive. Keywords were searched for in either the title or abstract of the article. From the results displayed, a further manual search for research articles was made.

Results:

Non-communicable diseases show significant increase in the number of articles in the second half of 20^{th} century. Number of research articles on communicable diseases show fluctuations coinciding with the epidemics of respective diseases. Increase in the number of research articles for certain diseases is preceded by a large increase in non-research articles.

Conclusion:

Publication of articles in the BMJ very closely reflects the changes in the disease patterns, magnitude and in their treatments and trends in BMJ publications may also predict future research activity/publications.

Introduction

History is supposed to be a great teacher, and the BMJ Archive is a reflection of the field of medicine over the past 170 years. For much of this period "the sun never set on British soil"- so we could perhaps say that publications in the BMJ reflected the worldwide state of medicine, albeit with a British perspective. Thus, we felt that BMJ articles could be used to encapsulate the historical trends of interest in medical subjects over the past 170 years. We sought to study the trends of publications regarding common diseases/conditions and interventions in the BMJ from the year 1840 onwards. We also analysed whether there was any relationship between how often a subject (e.g., tuberculosis) appears in an original research article as opposed to a news item or a correspondence. This was to determine whether the interest in a particular topic precedes or follows the publication of research.

Setting

Archives of the British Medical journal as available on the electronic database, from October 1840 to September 2009 (169 years)

Type of study

Observational study

Method

We selected 10 search terms: 4 communicable diseases, 4 non-communicable diseases, and 2 interventions (Table 1). The "Advanced Search" option on BMJ website was used, and the conditions were set as to include all possible articles for that condition/intervention. Keywords were searched for in either the title or abstract of the article. From the results displayed, a further manual search for research articles was made. Wherever the article titles were not self-explanatory, abstracts were read to determine if the search term was the primary research question or main outcome measure in the article. All selected articles were downloaded to EndNote (Ver 12.0 Thomson Reuters, Philadelphia, PA) for further data management. Year-wise data were collected and yearly publication rates were calculated for each search term for sequential periods; first a 30 year period from 1840 to 1970, and 20 year periods thereafter. Ratios of all articles to research articles (Research Ratio; abbreviated to ResR to avoid confusion with Relative Risk) were also calculated. High ResR means a low proportion of research articles compared with non-research articles. In addition to this detailed search, we also conducted inclusive general search (Table 3) for 6 additional search terms in the title or abstract; 2 communicable diseases (polio, small pox) and for 4 general terms (cancer, stroke, ethic, vaccine).

Results and Discussion

The detailed trends for each disease are also available in this document and make very interesting viewing.

General trends

It was not a surprise that the proportion of research articles from the non-communicable disease group has significantly increased ($p < 0.0001$) in second half of 20th century (81%) as compared to the first half (16%). Table 2 displays yearly averages of research articles, all articles and ResR for each search term.

For malaria, the publication of research articles has been relatively constant and the number of publications increased around the turn of 19th century (research relating to African colonies), early 1950s (new drugs) and late 1980s (travel related research). Publication of all articles relating to malaria steadily increased after 1950. Despite being a common disease in 19th century Britain and being a common disease in the third world today, cholera has the lowest yearly average (Table 2) of research articles. It does however reveal peaks corresponding to the pandemics- for example number of research articles rose in late 1840s (second pandemic) and late 1880s (5th pandemic). Similarly, research articles regarding influenza show a waxing-waning trend in sync with various pandemics, viz., late 1910s, late 1960s and around 2005. Furthermore, the total number of articles per year has been steadily increasing since the 1950s. Research articles on tuberculosis showed a very large and sustained rise in the 1930s and the 1940s and a recent increase in the 1990s.

Research articles regarding obesity show an increase in numbers around the 1970s (biology of obesity, drug and surgical treatment) and late 1990s-early 2000s (childhood obesity). Research publications on lung cancer have steadily increased since 1950. Research publications regarding aspirin show an increase in the 1970s (gastric and renal toxicities) and in the 1990s (use in cardiac diseases) while those regarding transfusion show an increase around the 1940s (use of stored blood), in the late 1960s (intrauterine blood transfusion), and in the late 1980s (diseases transmitted through blood). The number of research articles regarding transfusion also shows a recent drop, possibly due to a shift to specialty journals.

Our general search for 6 additional search terms shows some interesting trends (Figure 2). Publications on cancer have been steadily rising from the turn of 19th century with the last few decades showing a very steep rise. Publications on stroke show a steep rise only in recent decades. Publications on terms relating to vaccines show an increase coinciding with an increase in publications on smallpox, around the turn of 19th century, and another increase after 1950, coinciding this time with an increase in the publications on polio. Interestingly, publications containing derivations of 'ethic' show an increase for 4 decades from 1870, followed by a very low number of publications for next 4 decades, a gradual rise in numbers after the Second World War and the Nuremberg trials and a steep rise in numbers from 1970 onwards, presumably after the Tuskegee trials. The medical fraternity through their publications in the BMJ appear to reflect the world events and the ethical issues of the modern world.

In the BMJ, topics are also discussed in the news section or correspondence section. We used the number of such citations as a surrogate for the 'public attention' or 'topicality' and attempted to temporally correlate it with research publications as demonstrated by ResR. We found that ResR is the lowest for articles regarding blood pressure and heart disease, indicating that there is a high proportion of original research compared with non-research articles. On the other hand, it is the highest for obesity, indicating a lot of talk and relatively little original research.

Most interestingly, the increased number of research publications regarding heart disease and obesity in the 1960s and 1970s were ***preceded*** by the increase in non-research articles resulting in a high premonitory ResR. This phenomenon is reminiscent of the typical graphs showing the temporal trend of smoking and lung cancer where rising incidence of smoking precedes rising incidence of lung cancer. Is it the case that increased recognition of a problem and coverage in the correspondence and news sections stimulated research in these topics or is it that heightened interest in these topics in the journal attracted authors to the BMJ to submit their 'topical' research? Is it also possible that such increased recognition also eased the acceptance of articles on the topic? These are merely possibilities, the phenomenon has not been observed for other search terms where the number of research publications has increased in the second half of 20th century. However, for some diseases, the trends may be limited to a shorter time frame than the one we studied. Future research into their microtrends (over months rather than decades) may identify interesting predictive patterns and help prospective authors to optimally select the time and journal for their manuscript submission. Ergo, read the BMJ- spot the trends-get published.

This study has a few limitations, overlap of articles between different search terms like heart disease and blood pressure may result in some articles being counted more than once. Such overlap, a feature of non-communicable diseases, may inflate the number of articles in this group. However, this effect is likely to be minimal, and is not expected to distort trends. Certain disease terms have changed over period of time, e.g. the term tuberculosis was not used before the 1870s. Such change in terminology may have underestimated the number of articles in early years, but it is unlikely to affect trends in past few decades. The publication in the journal may not reflect the actual research and publication activity in the general medical field, while this may apply to some journals; it is least likely to be the case for a leading journal like BMJ, with publications spanning three centuries.

Conclusion

This study demonstrates how archived publication data from a general medical journal can provide valuable information on research trends, effect of inventions (drugs, techniques) on these trends, and general trends regarding diseases themselves. Our study shows that the proportion of non-communicable disease has increased significantly in past few decades; nevertheless, certain communicable diseases like tuberculosis have remained an important clinical and research problem for over a century.

We found a heightened research activity associated with influenza epidemics, which may have helped in containing those, increased research on treatment of obesity after it was recognised as a significant problem in general discussions, and a sustained research response to the increasing magnitude of non-communicable diseases like heart disease and cancer. The temporal correlation of such trends in research and non-research articles could be said to elegantly demonstrate how well the medical community promptly responds to great medical challenges. Alternatively, it may just reflect the cleverness of authors submitting a topical manuscript at the right time!

Table 1: Description of categories, search terms, keywords and the number of publications.

Category	Search Term	Keywords	Research Articles	Total Articles
Communicable diseases	Malaria	Malaria	196	1179
	Cholera	Cholera	104	727
	Flu	Flu, Influenza	162	994
	Tuberculosis	Tuberculosis	381	2737
Non-communicable diseases	IHD	Myocard*	464	1218
	Blood pressure	Blood pressure	899	1323
	Obesity	Obesity,obese, overweigh*	161	1534
	Lung cancer	Lung cancer	149	892
Interventions	Aspirin	Aspirin	131	539
	Transfusion	Transfusion	195	1163

Table 2: Yearly averages for research articles and all publications.

Category	Search Term	Research Articles	Total Articles	ResR
Communicable diseases	Malaria	1.16	6.98	6.02
	Cholera	0.62	4.30	6.99
	Flu	0.96	5.88	6.14
	Tuberculosis	2.25	16.21	7.19
Non-communicable diseases	IHD	2.75	7.21	2.63
	Blood pressure	5.11	7.85	1.54
	Obesity	0.95	9.08	9.53
	Lung cancer	0.88	5.28	5.99
Interventions	Aspirin	0.78	3.19	4.11
	Transfusion	1.15	6.88	5.96

Table 3: Description of general search terms, keywords and the number of publications.

Search Term	Keywords	Total Articles
Cancer	Cancer	8865
Stroke	Stroke	3214
Ethic	Ethic*	5500
Polio	Polio*	727
Smallpox	Small-pox, small pox, smallpox	756
Vaccine	Vaccin*	3079

Figure 1: Average Research articles per year.

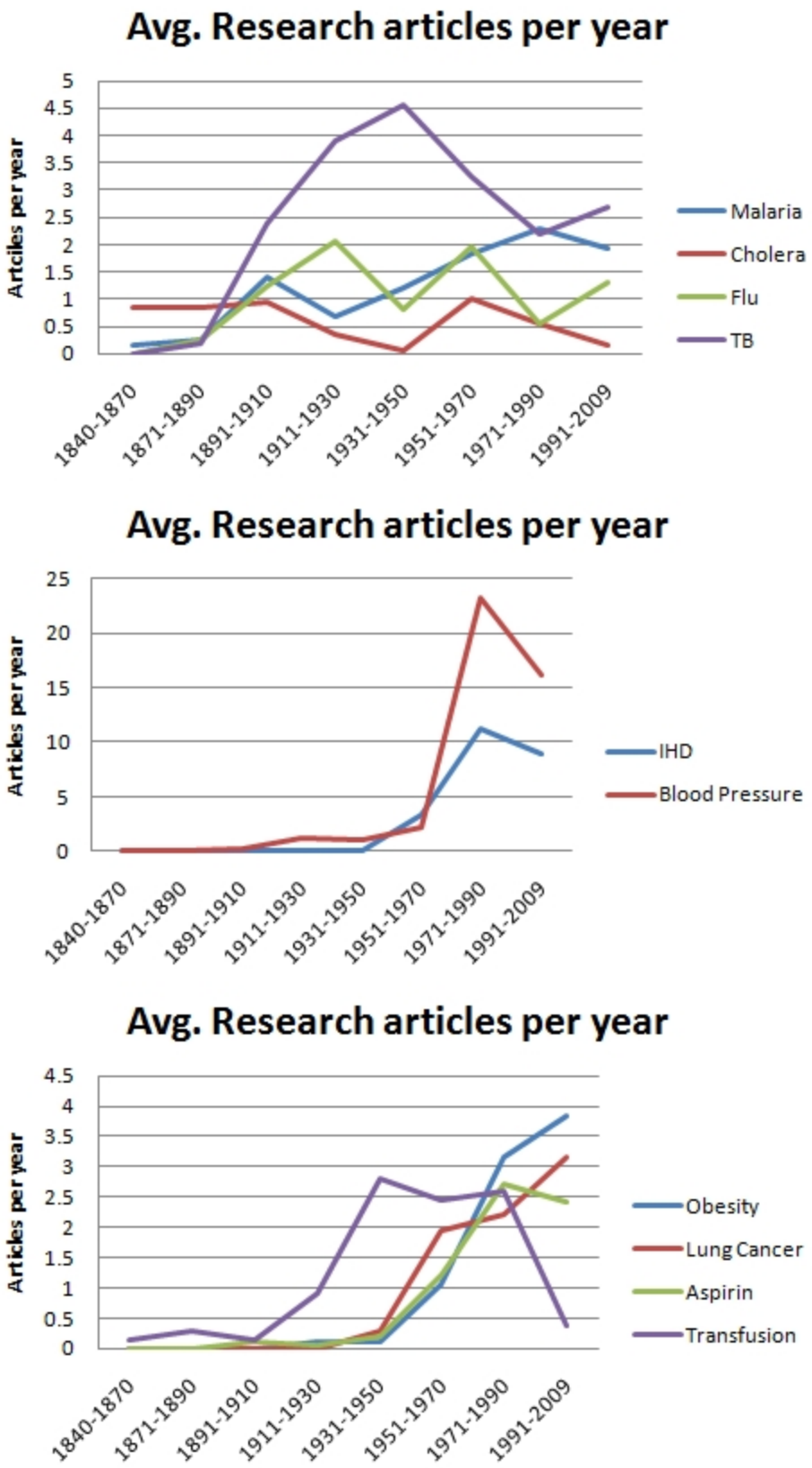
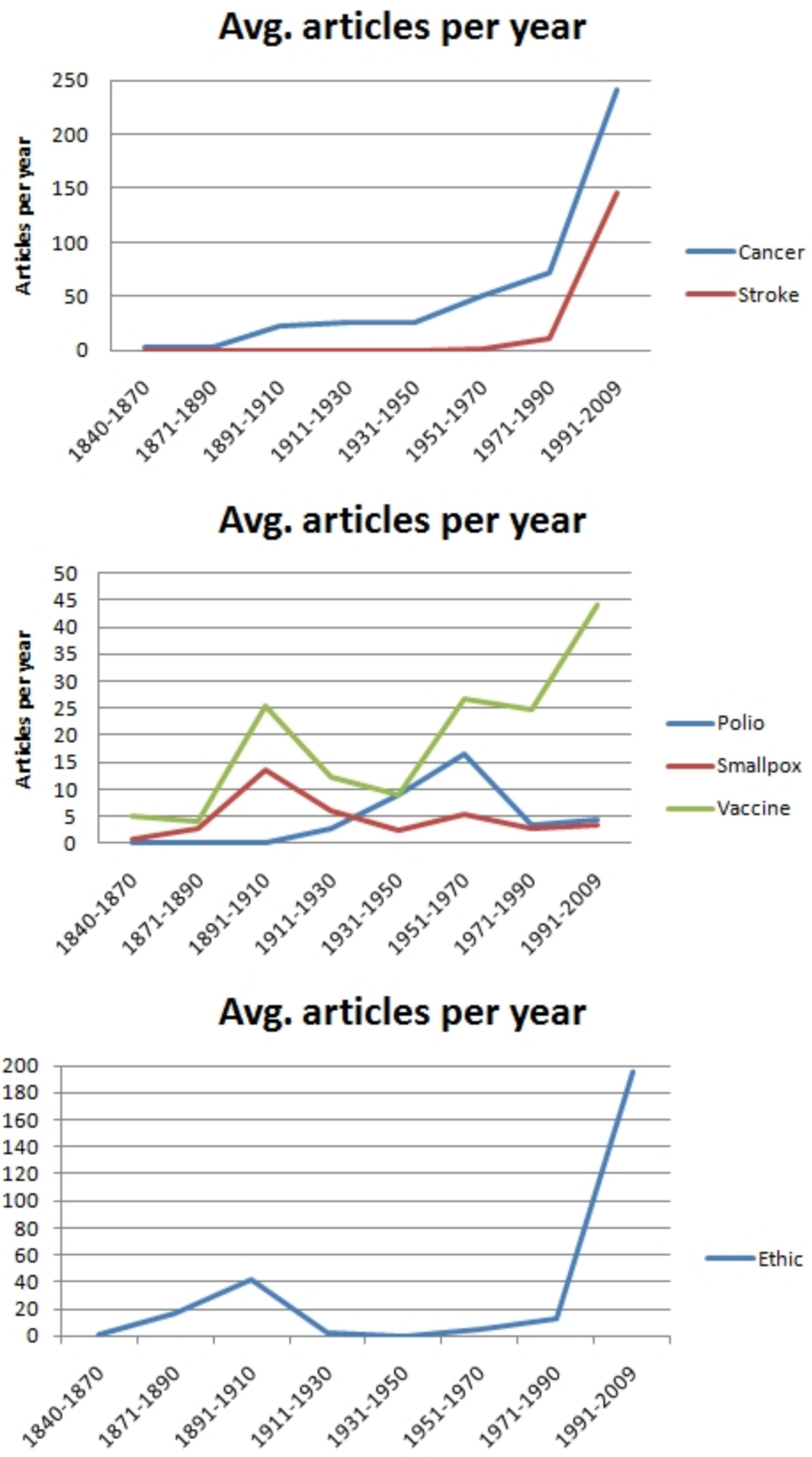
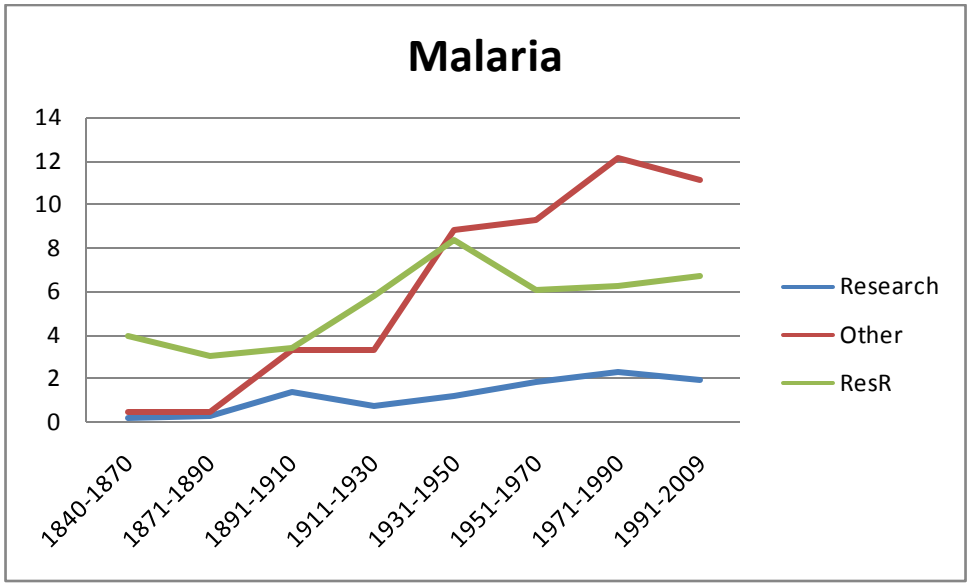
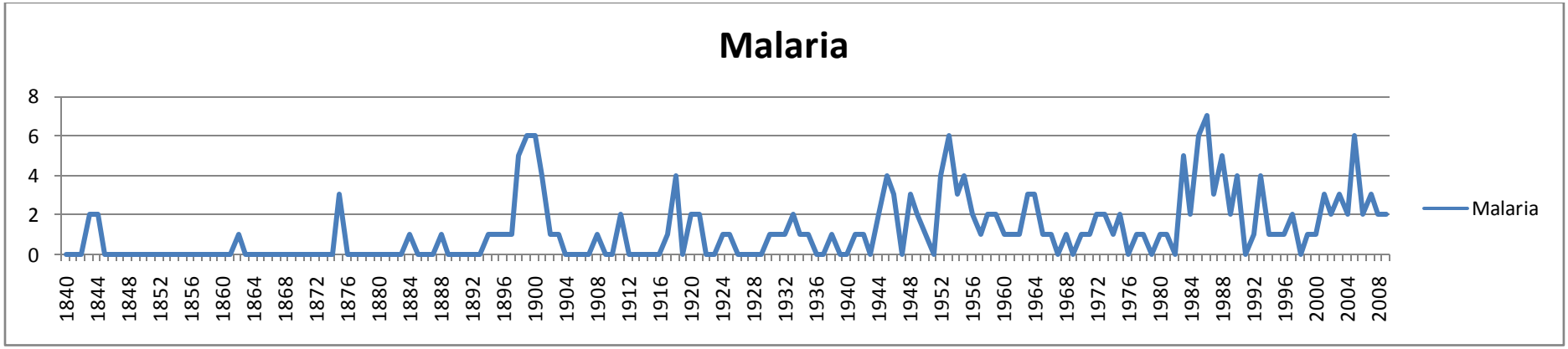


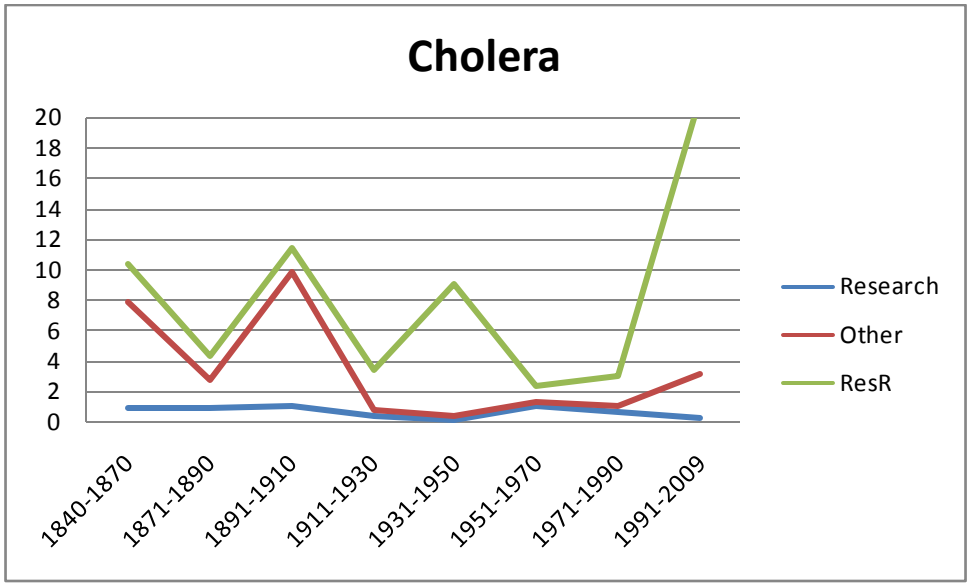
Figure 2: Average Total articles per year.

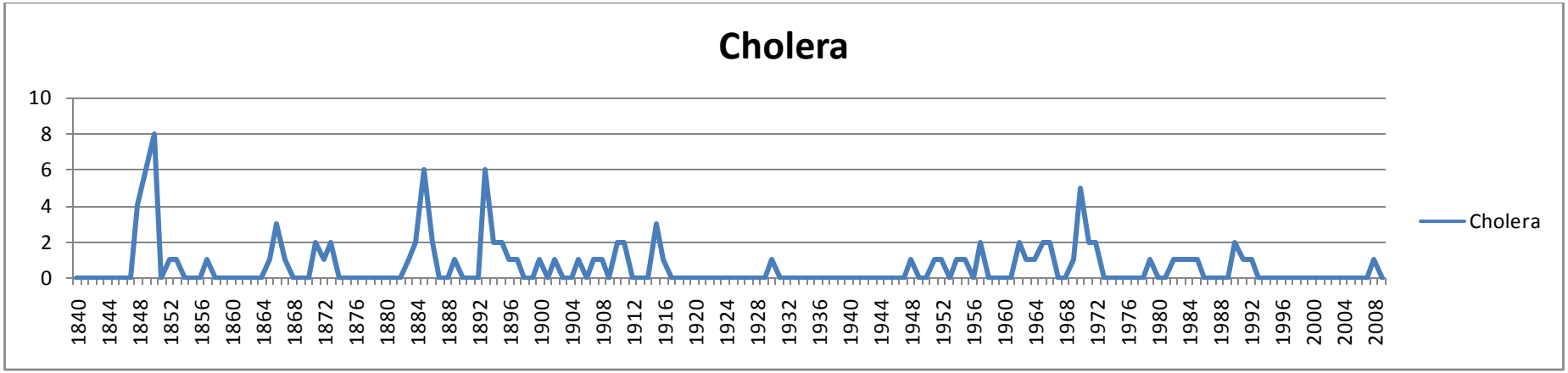






Year-wise number of RESEARCH articles





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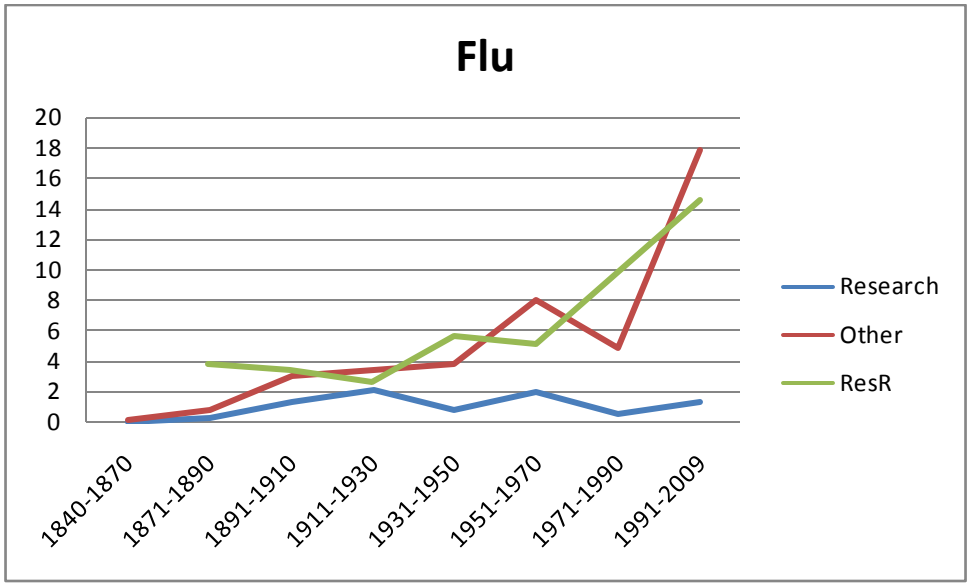

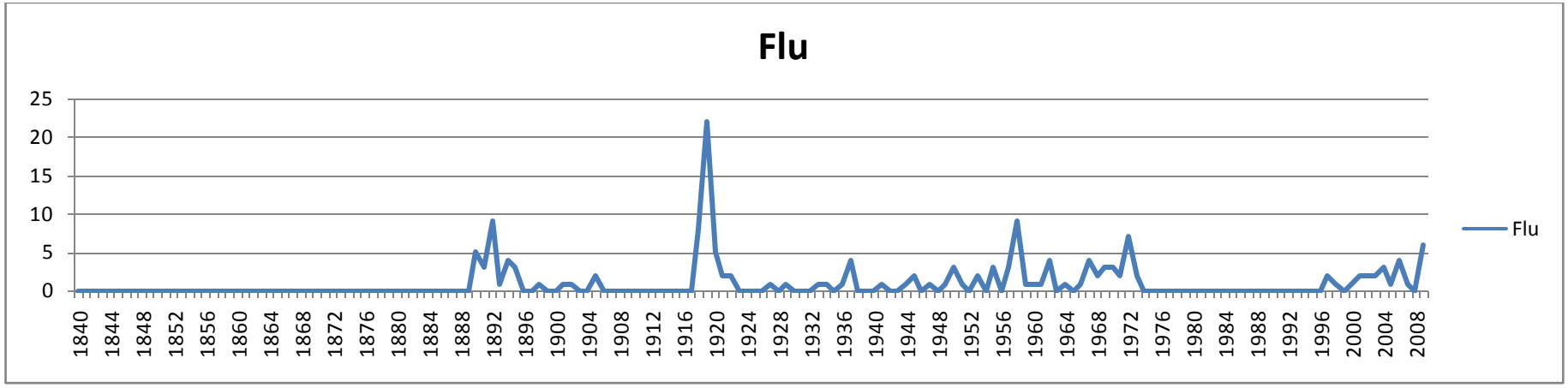

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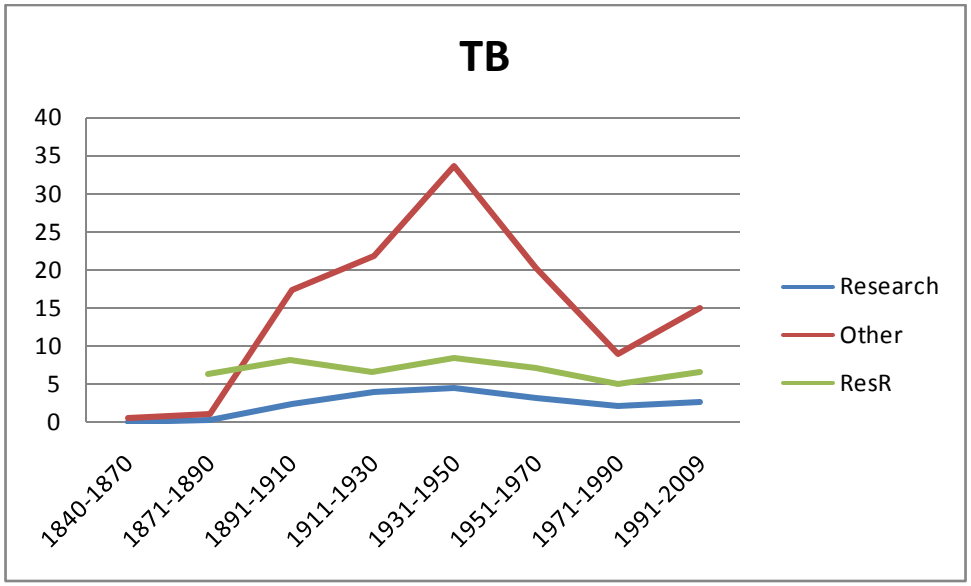

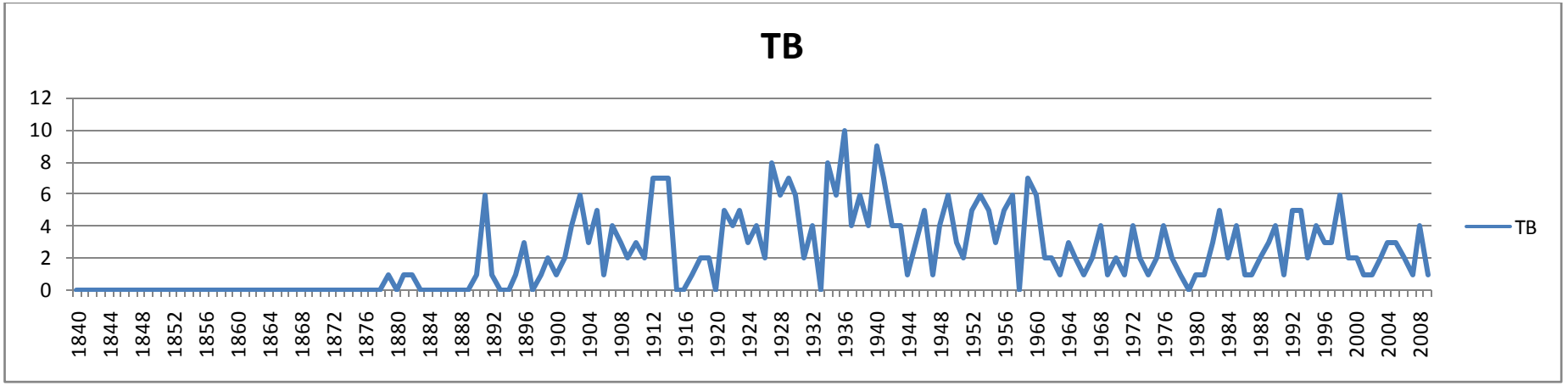

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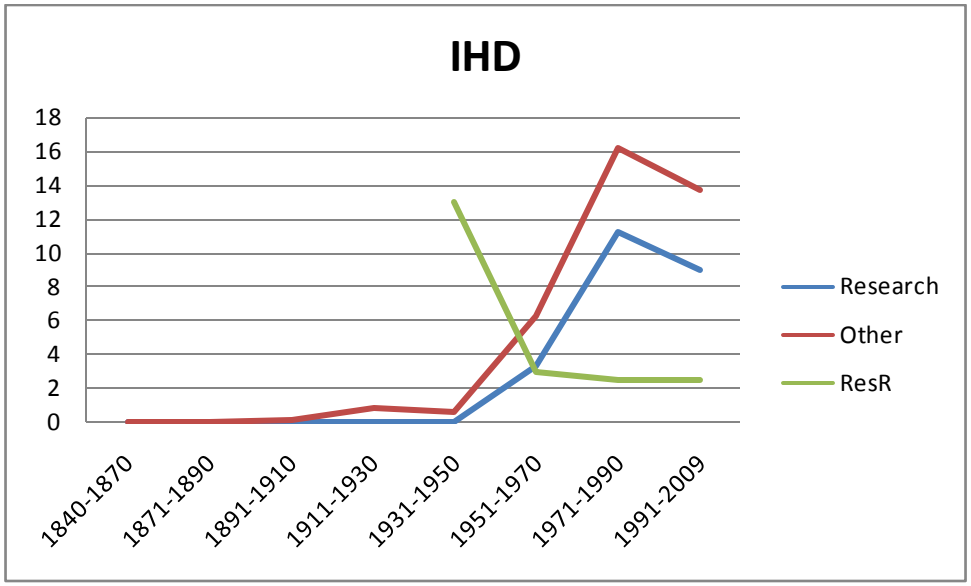
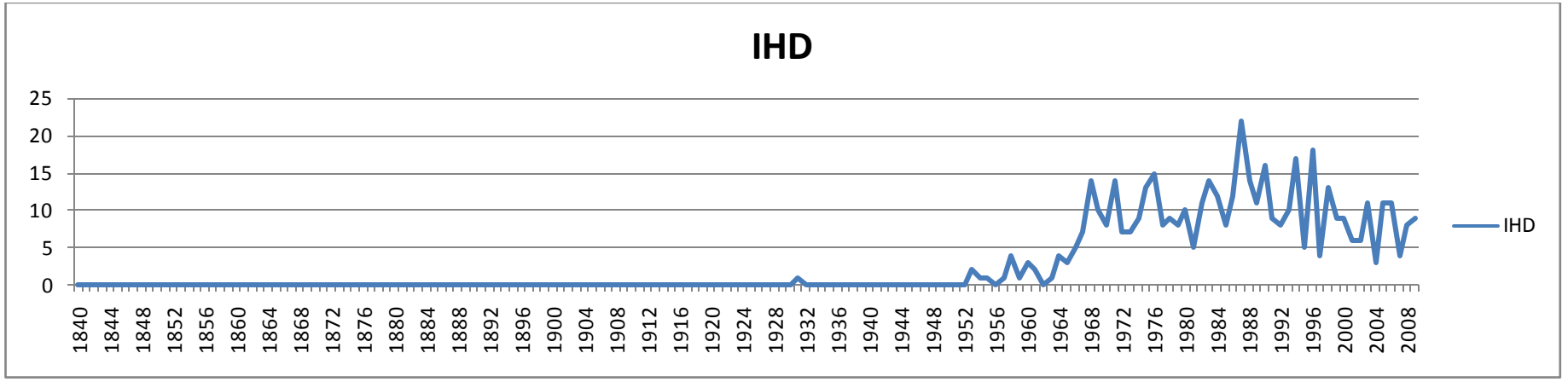
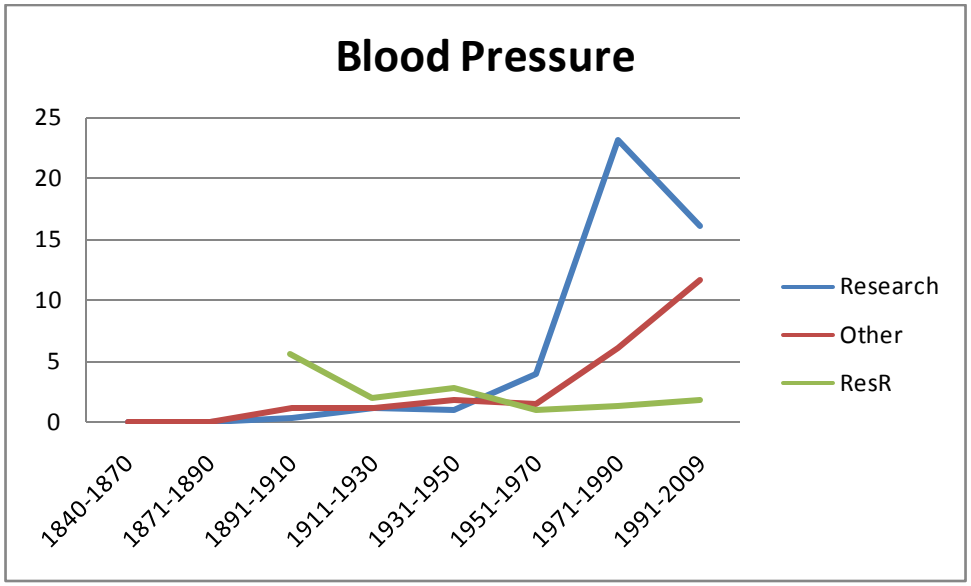
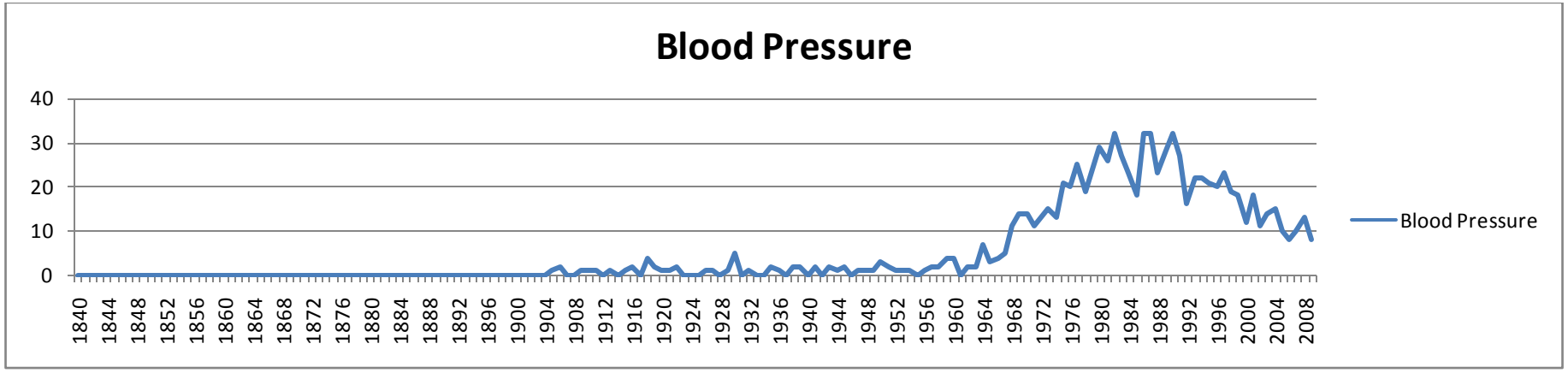




Year-wise number of RESEARCH articles





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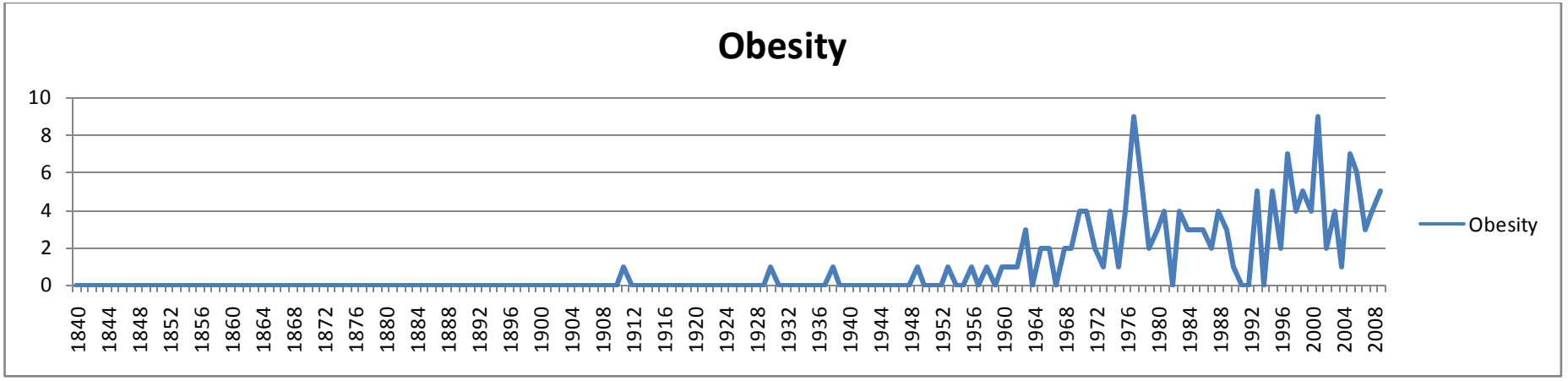

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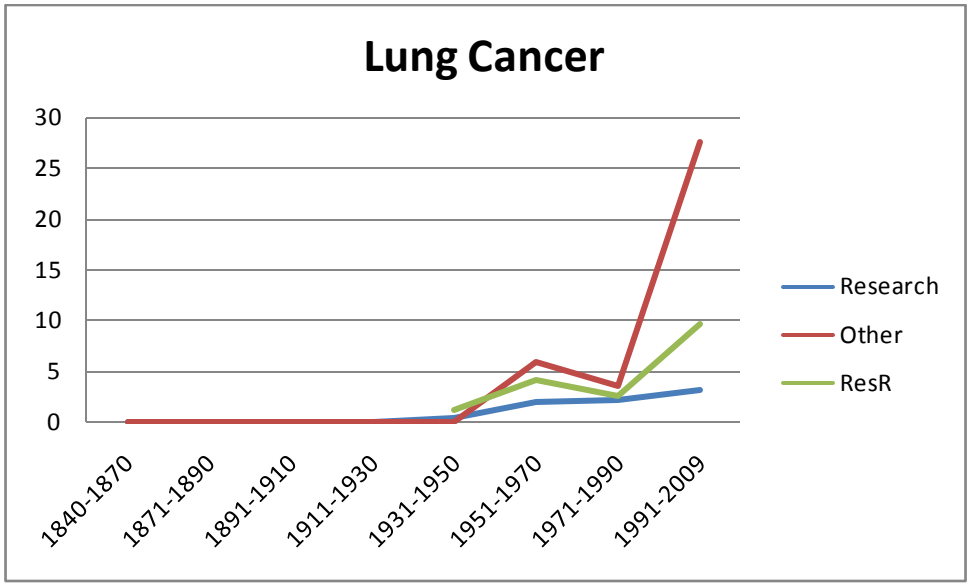

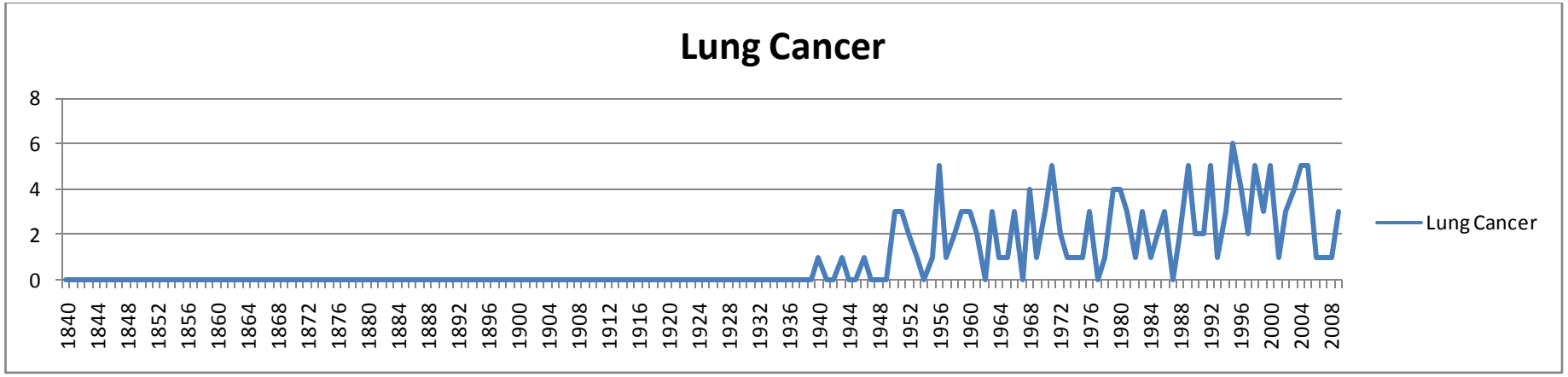

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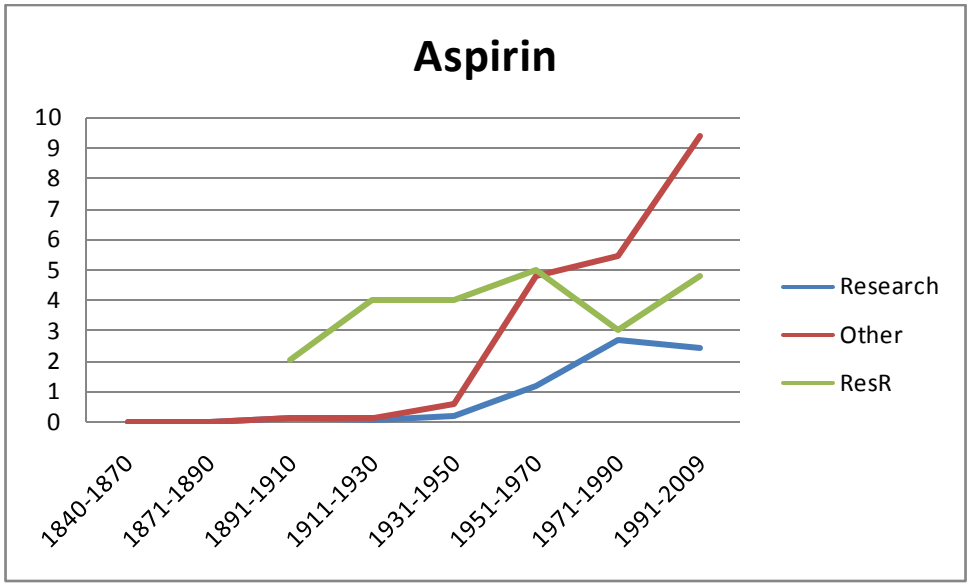

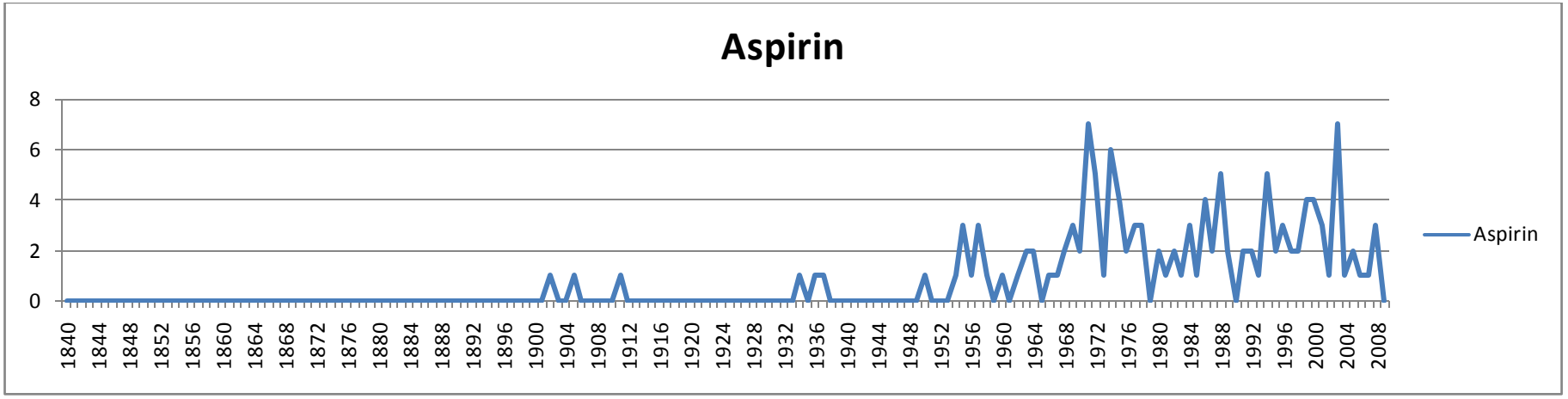

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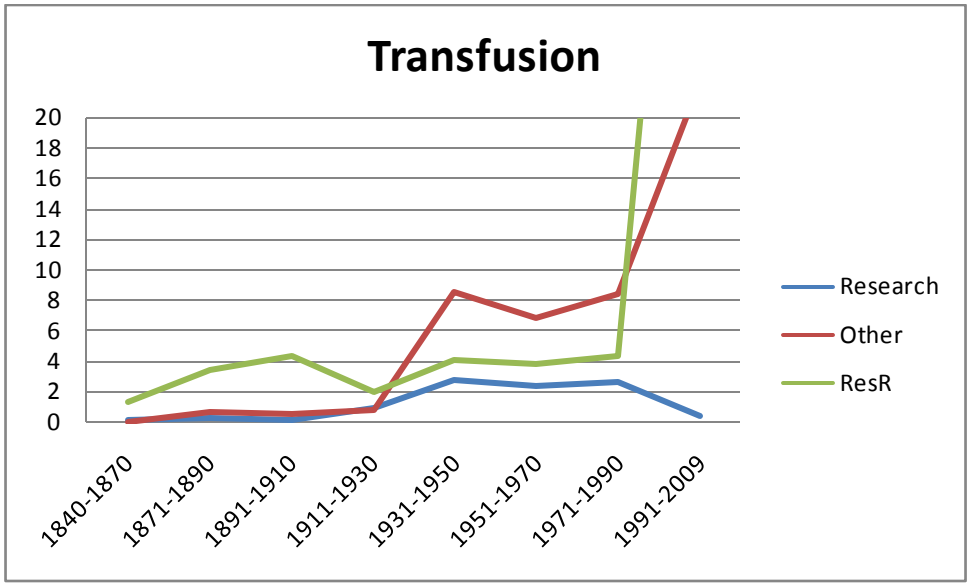

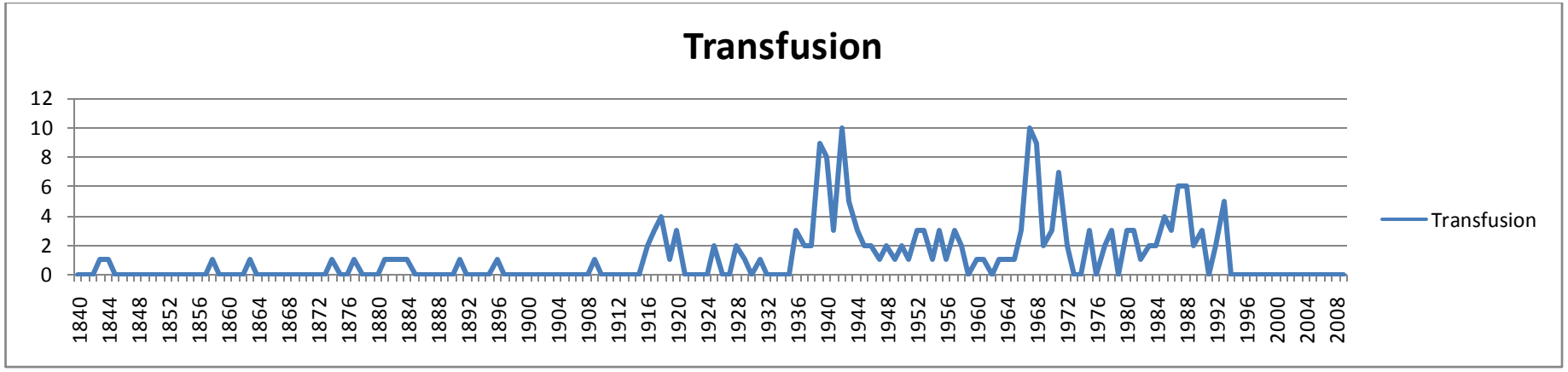

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