

New Institutional Research Misconduct Activity: 1992-2001

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### **Introduction**

This paper presents data reported by institutions in their Annual Report on Possible Research Misconduct (Annual Report) from 1992-2001. Submission of the Annual Report is mandated by the regulation (42 CFR, Part 50, Subpart A)<sup>1</sup>:

An institution shall submit, along with its annual assurance, such aggregate information on allegations, inquiries and investigations as the Secretary may prescribe.

The misconduct activity (receipt of an allegation, conduct of an inquiry and/or investigation) is limited to research supported by the U. S. Public Health Service (PHS). Institutions report on misconduct activity carried into the reporting year and misconduct activity initiated in the reporting year. This paper only presents data on misconduct activity initiated in the reporting year.

Institutions report the following data in their Annual Report: number of allegations received, number of inquiries conducted, number of investigations conducted, and type(s) of research misconduct alleged - fabrication, falsification, plagiarism and/or other serious deviations from commonly accepted practices.

For this analysis, a database was created containing the information submitted by institutions in their Annual Report plus the type of institution reporting, the number of years an institution reported misconduct activity, the number of cases, the total number of allegations received, the number of misconduct findings made, and the institution's rank on the NIH funding ladder.<sup>2</sup>

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<sup>1</sup> This regulation was superseded in June 2005 by Public Health Service Policies on Research Misconduct (42 CFR Part 93). The Annual Report remains required.

<sup>2</sup> NIH classifies institutions using the following code: (10) higher education, (20) research organization, institute, laboratory, foundation, (30) independent hospital, (40) education organizations other than higher education, (50) other health, human resources, environmental organizations, and (90) other (small businesses).

## Research Questions

The analysis was conducted as part of a larger effort being made by ORI to develop preliminary data on the variation in research misconduct activity occurring among institutions that may be helpful in generating an understanding of the occurrence of research misconduct, evaluating the implementation of the research misconduct regulation by institutions, and in identifying avenues for further inquiry.<sup>3</sup> Data produced in this analysis address the following questions:

- Is the number of institutions reporting research misconduct activity increasing?
- How frequently do institutions report research misconduct activity?
- How many research misconduct cases do institutions report?
- What types of institutions report research misconduct activity?
- How much research misconduct activity is occurring?
- What types of research misconduct are being alleged?
- How frequently does research misconduct activity result in research misconduct findings?
- Is there a relationship between misconduct activity and level of funding?

## Number of Institutions Reporting Misconduct Activity

On average, 3662 institutions or organizations filed Annual Reports each year with a range from about 2847 to 4147. More than half of these organizations were small businesses that did little research and generated little misconduct activity. Most of the research is done by institutions of higher education; research organizations, institutes, laboratories or foundations, and independent hospitals. On average about 1375 of these organizations filed Annual Reports each year with a range from 1258 to 1560. The number of institutions reporting research misconduct activity each year ranged from 33 to 64 with an average of 53 or 1.4 percent of the total institutions reporting and 3.9 percent of the organization doing most of the research.

During the 10-year period, 529 institutions reported research misconduct activity, of which 248 were institutions reporting misconduct activity for the first time. The number of new institutions reporting misconduct activity steadily increased during the decade, but at a decreasing rate (Table 1).

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<sup>3</sup> Also see *ORI Closed Investigations into Misconduct Allegations Involving Research Supported by the Public Health Service: 1994-2003* at [http://ori.hhs.gov/research/intra/studies\\_completed.shtml](http://ori.hhs.gov/research/intra/studies_completed.shtml)

Table 1. Percent of Institutions Reporting Research Misconduct Activity on Their Annual Reports for the First Time by Year: 1992-2001

Year	Institutions Reporting Activity	New Institutions	Percent New
1992	40	40	100
1993	33	22	67
1994	57	34	60
1995	64	41	64
1996	59	27	46
Subtotal	253	164	
1997	53	20	38
1998	42	9	21
1999	57	20	35
2000	62	20	32
2001	62	15	24
Total	529	248	

### Number of Years Misconduct Activity Reported

The majority of institutions (58 percent) that reported research misconduct activity did so in only one year. About 36 percent of the institutions reported research misconduct activity in two to five years while only about 6 percent of the institutions reported research misconduct activity in six to 10 years. (Table 2).

Table 2. Number of Years Research Misconduct Activity Reported by Number of Institutions: 1992-2001

Years	Institutions	Percent
One	145	58
Two	32	13
Three	24	10
Four	16	6
Five	18	7
Six	7	3
Seven	2	1
Eight	2	1

Nine	2	1
Total	248	100

### **Number of Research Misconduct Cases Reported**

The majority of the institutions (55 percent) that reported research misconduct activity only reported one case. Another 29 percent reported two to five cases; 13 percent reported six to 10 cases, and 3 percent reported 11 to 20 cases. (Table 3).

Table 3: Number of Research Misconduct Cases Reported by Number of Institutions: 1992-2001

Cases	Institutions	Percent
One	136	55
Two	36	14
Three	21	8
Four	7	3
Five	9	4
Six-Ten	31	13
Eleven-Twenty	8	3
Total	248	100

### **Types of Institutions Reporting Research Misconduct Activity**

Of the 248 institutions reporting research misconduct activity during the 10-year period, 61 percent were in higher education; 17 percent were research organizations, institutes, laboratories, or foundations, and 11 percent were independent hospitals. Those categories accounted for 89 percent of the institutions reporting research misconduct activity. Other institutional types reporting research misconduct activity were small businesses (6 percent) and other health organizations (4 percent). (Table 4).

Of the 76 institutions that made research misconduct findings, 57 (75 percent) were in higher education, 6 (8 percent) were independent hospitals, and 5 (7 percent) were research organizations, institutes, laboratories, and foundations. Ninety percent of the institutions making research misconduct findings were in those three categories. Other types of institutions making research misconduct findings were small businesses (5 percent) and other health organizations (3 percent).

Table 4: Types of Institutions Reporting Research Misconduct Activity by Research Misconduct Findings: 1992-2001

Institutional Type	Activity		Misconduct	
	N	%	N	%
Higher education	152	61	57	75
Research org., inst., lab	41	17	5	7
Independent hosp.	26	11	6	8
Other educational org	0	0	0	0
Other health org	11	4	2	3
Other - Small businesses	16	6	4	5
Not classified	2	1	2	2
Total	248	100	76	100

### Research Misconduct Activity Reported by Institutions

The 248 institutions reported 703 cases during the decade that resulted in 602 inquiries, 221 investigations, and 110 research misconduct findings made by 76 institutions. About 86 percent of the cases survive a preliminary review of the allegation(s) and continue to an inquiry, 31 percent result in an investigation, and 16 percent produce research misconduct findings. About 37 percent of the inquiries continue onto an investigation. About 50 percent of the investigations result in research misconduct findings. Thirty-one percent of the institutions that have reported research misconduct activity have made research misconduct findings. (Table 5)

Table 5: Research Misconduct Activity Reported by Institutions: 1992-2001

Activity	Number
Institutions reporting	248
Cases	703
Inquiries	602
Investigations	221
Misconduct findings	110
Institutions finding misconduct	76

### Types of Research Misconduct Alleged

Eight hundred and eighty-three allegations were reported by the 248 reporting institutions. Falsification was the most frequently reported type of research misconduct reported, 36 percent, followed by other serious deviations from commonly accepted practices, 25 percent; fabrication, 24 percent, and plagiarism, 15 percent. (Table 6).

Table 6: Types of Research Misconduct Alleged:  
1992-2001

Type	Number	Percent
Fabrication	218	24
Falsification	315	36
Plagiarism	130	15
Other	220	25
Total	883	100

### Number of Research Misconduct Findings

Of the 76 institutions that made research misconduct findings during the 10-year period, 55 (72 percent) made one, 14 institutions (18 percent) made two; 2 institutions (3 percent) made three, and 5 institutions (7 percent) made four. No institution made more than four research misconduct findings during the study period. (Table 7).

Table 7: Number of Research Misconduct Findings  
by Number of Institutions: 1992-2001

Findings	Institutions	Percent
One	55	72
Two	14	18
Three	2	3
Four	5	7
Total	76	100

### Level of Funding

Studies have suggested that a positive correlation may exist between increased funding and increased misconduct.<sup>4</sup> To investigate this assertion, the funding rank of institutions reporting research misconduct activity was determined by averaging the positions the institutions held in the award data published by the National Institutes of Health for 1996 and 2001. There were 1977 ranks in 1996 and 2603 in 2001 for an average of 2290. (Table 8).

As the following tables indicate, categorizing institutions by amount of funding produces

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<sup>4</sup> University Policies and Ethical Issues in Research and Graduate Education: Highlights of the CGS Deans' Survey. Judith P. Swazey, Karen Seashore Louis and Melissa S. Anderson. *CGS Communicator*, V. 22, No. 3, March 1989. Top Funded Institutions Report Most Misconduct Activity. *ORI Newsletter*, V. 6, No. 3, June 1998.

interesting results, but provides little explanation for the association. The amount of funding produces a continuum. The arbitrary categories created using the amount of funding, however, generate overlapping categories based on number of awards. Even within the categories there is considerable variation in funding and number of awards.

Nevertheless the following analysis indicates that research misconduct activity occurs in institutions at the top of the funding ladder especially in the top 25 and top 75 institutions but extends a considerable distance down the ladder to the lower rungs.

Table 8: NIH Funding Ranks by Number of Awards and Level of Funding - 2001

Rank	Awards	Millions
1-25	424-1,171	\$155-457
26-50	43-511	92-154
51-75	155-316	58-92
76-100	11-205	38-58
101-125	4-155	27-38
126-150	2-95	19-27
151-175	1-75	14-18
176-200	5-71	11-14
201-2603	1-52	<11

#### Rank of Institutions Reporting Activity

Ninety-eight percent of the top 50 funded institutions, 95 percent of the top 75 funded institutions, 88 percent of the top 100 funded institutions and 84 percent of the top 125 funded institutions reported research misconduct activity during the study period. Only one of the top 50 funded institutions and only four of the top 75 funded institutions have not reported research misconduct activity. (Table 9).

The top 75 institutions accounted for 29 percent of the institutions reporting misconduct, 29 percent of the institutions reporting the conduct of inquiries, and 39 percent of the institutions reporting the conduct of investigations. Seven percent of the top 75 institutions have not conducted an inquiry and 29 percent have not conducted an investigation.

Table 9: Number of Institutions Reporting Research Misconduct Activity by NIH Funding Rank: 1992-2001

Rank	Reporting Cases		Conduct Inquiries		Conduct Investigations	
	N	%	N	%	N	%
1-25	24	10	24	10	22	16
26-50	25	10	24	10	17	13
51-75	22	9	22	9	14	10
76-100	17	7	17	7	10	8
101-125	17	7	14	6	8	6
126-200	29	12	29	12	8	6
201-2290	114	45	106	46	56	41
Total	248	100	236	100	135	100

Misconduct Activity by Rank of Institutions

The top 75 funded institutions accounted for 57 percent of the research misconduct cases reported, 58 percent of the inquiries conducted, and 51 percent of the investigations conducted. Noticeable breaks in the reported misconduct activity occur after the 1-25 category and the 51-75 category. (Table 10).

Table 10: Number of Cases, Inquiries and Investigations by NIH Funding Rank of Institution: 1992-2001

Rank	Cases		Inquiries		Investigations	
	N	%	N	%	N	%
1-25	200	28	175	29	65	29
26-50	100	14	86	14	29	13
51-75	103	15	88	15	19	9
76-100	59	8	50	8	24	11
101-125	46	7	35	6	13	6
126-150	30	4	18	3	6	3
151-175	8	1	9	1	0	0
176-200	13	2	11	2	3	1
201-2290	144	21	130	22	62	28
Total	703	100	602	100	221	100

### Alleged Misconduct by Rank of Institution

The top 75 funded institutions received 59 percent of the 883 allegations reported. Falsification was the most frequent allegation reported followed by “other practices” and fabrication. Plagiarism was the least frequent allegation received. (Table 11).

Table 11: Alleged Research Misconduct Reported by NIH  
Funding Rank of Institution: 1992-2001

Rank	Fabrication		Falsification		Plagiarism		Other		Total	
	N	%	N	%	N	%	N	%	N	%
1-25	63	29	86	27	50	39	53	24	252	28
26-50	30	14	55	17	13	10	32	15	130	15
51-75	33	15	42	13	17	13	50	23	142	16
76-100	21	9	27	9	7	5	16	7	71	8
101-125	23	10	24	8	7	5	13	6	67	8
126-150	8	4	11	3	8	6	11	5	38	4
151-175	1	1	5	2	1	1	3	1	10	1
176-200	7	3	9	3	3	2	6	3	25	3
201-2290	32	15	56	18	24	19	36	16	148	17
Total	218	100	315	100	130	100	220	100	883	100

### Research Misconduct Findings by Rank of Institution

Seventy-six percent of the top 25 funded institutions have made research misconduct findings. The percent declines rapidly to 48 percent in the 26-50 category, to 40 percent in the 51-75 and 76-100 categories, and to 20 percent in the 101-125 category. (Table 12).

The top 25 institutions account for 25 percent of the institutions that have found misconduct; the top 75 institutions, 54 percent. Thirty-four percent of the research misconduct findings were made by the top 25 institutions which is more than double the research misconduct findings made by any other category. Fifty-eight percent of the research misconduct findings were made by the top 75 institutions.

Table 12: Number of Institutions and Misconduct Findings by NIH Funding Rank: 1992-2001

Rank	Institutions		Misconduct	
	N	%	N	%
1-25	19	25	38	34
26-50	12	16	16	15
51-75	10	13	10	9
76-100	10	13	16	15
101-125	5	7	7	6
126-200	3	4	3	3
201-2290	17	22	20	18
Total	76	100	110	100

### Conclusion

The number of institutions responding to allegations of research misconduct has grown steadily from 1992-2001 and is expected to continue to do so. Only 1.4 percent of the institutions filing an Annual Report on Possible Research Misconduct in a given year reported research misconduct activity and only 248 institutions reported such activity one or more times.

Most institutions reporting research misconduct activity report in only one year and only one case. A sizeable minority of those institutions, however, have reported activity in multiple years and several cases. Eighty-nine percent of the institutions reporting research misconduct fall into three categories: higher education, 61 percent; research organizations, institutes, laboratories and foundations, 17 percent, and independent hospitals, 11 percent. Institutions in these categories have made 90 percent of the research misconduct findings.

Most allegations made are not substantiated. Two hundred and forty-eight institutions opened 703 cases to process 883 allegations that resulted in 110 research misconduct findings by 76 institutions. Falsification was the most frequent allegations received; plagiarism the least frequent. Seventy-two percent of the 76 institutions that made research misconduct findings made only one. No institution made more than four.

More than half of the research misconduct activity occurred in the top 75 funded institutions; the remainder stretches far down the funding ladder.