What changes are there in decisions by the Wits Human Research Ethics Committee (Medical) and in process errors by research applicants between 2003 and 2015?

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Objective. A retrospective examination of numbers of applications, decision rates, and process errors in 2015 was done for comparison with earlier studies to understand current ethics secretariat workload.

Methods. In December 2015 information from committee minutes of all the meetings (N=11) in 2015 (January - November) was collected to quantify change in application numbers and process errors. Statistical analysis used SAS for Windows (version 9.4). Statistical significance was set at $p<0.05$.

Results. There were 809 new general research applications considered in 2015. Monthly approvals at first evaluation ranged from 4 to 30% with an overall approval rate of 16%. Minor revision was required in 72%, major revision in 11% and 1% of applications were not approved. The χ^2 test for trend for initial approvals showed a statistically significant decrease across the study periods ($p<0.0001$). However, the χ^2 test for trend for pending responses from applicants was also statistically significant ($\chi^2=29.64$). Informed consent and missing information process errors were the most frequent. There were statistically significant increases in lapses of confidentiality methods ($p<0.0001$) and discrepancies on application forms ($p<0.005$).

Conclusion. Applications to the Wits Human Research Ethics Committee (Medical) (HREC (M)) for ethics clearance almost doubled between 2003 and 2015 while approvals at first evaluation approximately halved. This has increased the workload on the HREC (M) secretariat. Process error rates are similar to those in an earlier study except that confidentiality and discrepancies have shown a statistically significant increase. Given limitation on the number of secretariat staff in the current stringent financial circumstances of South African universities, applicants need to improve the quality of their applications to increase approval at first review and reduce secretariat workload.

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Since 2008 I have published trends in general research workload at the University of the Witwatersrand (Wits) Human Research Ethics Committee (Medical) (HREC (M)) for the years 2002 through 2014.[1-4] The purpose has been to plan committee activity, to assess workload in the HREC (M) secretariat, and to understand change trends in applications.

The general trend has been increasing numbers of applications, due in part to a research requirement for registration as a clinical specialist with the Health Professions Council of South Africa (HPCSA) introduced in 2012[5] and pressure within universities to increase postgraduate student and research output.[6] There has been relative stabilisation in application numbers from 2014,[4] with about a third of general research applications being approved at first evaluation. However, while chairing the September 2015 monthly meeting I noticed that only 14% of applications were approved at the meeting, which was unexpected. To see if this was an isolated event or a general trend I decided to do a retrospective review of the minutes of the monthly meetings throughout 2015.

The objectives were:

- to record decision rates at initial and final evaluation for each application in 2015
- to see the rate of procedural errors[2,7] on which decisions were based
- to compare rates with earlier studies.

Methods

The study was done under Wits HREC (M) clearance M12014.

Minutes of the meetings from January through November 2015 were examined to anonymously record: study number, initial HREC (M) decision, final decision (after modification or resubmission), and process errors if present.

The initial decisions were one of four: approved, minor modification, major modification, not approved. For final decisions the groups were: approved, pending (no response from applicants to comments from the committee within 5 months of the final meeting in the time period) and not approved.

The process errors were: procedural violation, missing information, slip-ups and discrepancies – all four were devised by Angell and Dixon-Woods;[7] and an additional four are my categories, namely: informed consent, confidentiality, study sample, and legal.[2] Briefly they comprise:

- procedural violations[7] – failure to comply with application procedures
- missing information[7] – inadequate information to understand an application
- slip-ups[7] – minor errors
- discrepancies[7] – inconsistencies
- informed consent[2] – inadequate or poorly written consent documents

- confidentiality[2] – inadequate protection of participants
- study sample[2] – inappropriate choice, missing permission from relevant authorities
- legal[2] – contrary to SA law, potential incrimination.

The data were analysed with SAS for Windows (version 9.4, Cary NC, USA) using the χ^2 test, χ^2 test for trend and Fisher's exact test with statistical significance set at $p<0.05$.

Results

Percentage initial decision rates for 809 applications evaluated in 2015 are listed by month of meeting in Table 1. There was considerable fluctuation in application numbers per meeting, something influenced by academic deadlines for undergraduate and postgraduate students, closing dates for submissions of grant requests and university vacations. The busiest times are around Easter (usually the April meeting) when postgraduates who began their studies in January have designed a study, and in November that month's meeting contains many applications for projects that researchers wish to begin in January of the following year. Approvals at the first evaluation of an application ranged from 4 to 30% with an overall approval rate of 16%. There is a reciprocal pattern per meeting: if the initial approval rate is low then the revision rate increases. Most revisions required are minor, and they are normally managed by a chair or the original reviewers of an application; the mean rate for the study year was 72%. Major revisions (mean rate 11%) have to be resubmitted to the committee. Non-approval rates were low (mean 1%), indicative of the policy of the HREC (M) to try to facilitate research.

In Table 2 the initial and final decisions in 2015 are contrasted with rates in the earlier four study periods. Initial approval in 2015 was at a lower rate than previously. For the same year revision rates were higher but applications not approved were low. The χ^2 test for trend for initial approval showed a statistically significant decrease across the study periods ($\chi^2=53.94$, $p<0.0001$, degree of freedom (df)=1). No statistical analysis was done for the final approval, due to the high rate of pending responses from applicants. However, the χ^2 test for trend for pending responses from applicants was statistically significant ($\chi^2=29.64$, $p<0.0001$, df=1).

Procedural error rates in the period April 2008 - March 2009 are contrasted with rates in the current study (Table 3). Consent and missing information categories rates are very close while procedural violation, discrepancies and legal are still the three lowest. Study sample rate is similar to that in the first study but an additional 21% is due to an increase in applications, without prior permission to do a study from hospital or clinic chief executive officers (CEOs), because more CEOs required ethics approval before granting permission; this is not an error by applicants – the 21% is noted below Table 3. Fisher's exact test showed statistically significant increases in lapses of confidentiality methods ($p<0.0001$) and discrepancies in the application form ($p<0.005$).

Discussion

This study was undertaken to understand recent workload in the HREC (M) secretariat and reasons for revision of applications. An extensive literature search showed that publications of this type of study are scarce.

Catania *et al.*[8] reported on a 2004 national survey in the US of Institutional Review Boards (IRB). They remarked on '…the need for research to (a) examine workload and its effects on review quality, research costs, and faculty morale . . .' Interesting findings were an increase in the number of IRBs from 491 in 1995 to 3 853 in 2004. Regarding research applications, there were a quarter of a million in 2003. The researchers noted a significant increased workload for members of IRBs unaccompanied by an increase in the IRB 'labor

Table 1. Decisions at first evaluation of general research applications through the Wits Research office in 2015 (*n*=809, two withdrawals before evaluation were not included)

	Percentage (%)											
Decision	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Total**
Approved	17	11	30	5	15	18	24	26	14	4	10	16
Minor revision	73	77	56	85	69	75	65	61	74	79	78	72
Major revision	8	12	14	10	14	7	9	9	10	15	11	11
Not approved	2	0	0	0	2	0	2	4	1	2	1	1
Total (*n*)	53	74	79	101	52	67	85	74	77	47	100	809

Table 2. HREC (M) decisions for general research applications through the Wits Research Office over five periods 2003 (*n*=439),[1] 2007 (*n*=553),[1] April 2008 - March 2009 (*n*=586),[2] January - June 2013 (*n*=407)[4] and the current 2015 study (*n*=809)

	Initial decision (%)						Final decision (%)				
Decision	**2003**	**2007**	**2008/9**	**2013**	**2015**	**Decision**	**2003**	**2007**	**2008/9**	**2013**	**2015**
Approved	27	37	37	24	16	Approved*	77	81	69	83	69
Minor revision	62	55	56	66	72	Pending†	19	16	28	17	31
Major revision	7	5	3	4	11						
Not approved	4	3	4	6	1	Not approved	4	3	3	0.3	0.5

* Sum of applications approved at initial evaluation and after successful revision.
† No response from applicants within 5 months of the last meeting of the time period.

Table 3. Percentage process error rates at two time periods arranged in descending order in applications with at least one process error

Categories	Percentage process errors (%)	
	April 2008 - March 2009[2] (*N*=369 applications)	January - November 2015 (*N*=682 applications)
Consent	55	56
Missing information	43	49
Confidentiality	17	29
Slip-ups	15	20
Study sample	15	17*
Procedural violation	10	14
Discrepancies	7	13
Legal	3	5

* There is an additional 21% of applications having to provide ethics approval to Hospital CEOs / Clinic Managers to obtain permission to access study samples. This process differs from the earlier study and is not a process error.

Table 4. Initial approvals and percentage rates of main reasons for modifications

Year	Country	HRECs, *n*	Initial approval, %	Modification / total applications, *n*	Main reasons for modification, %
1994	France[11]	25	31	718/976	Informed consent 46, protocol 19, legal 6
2002	Finland[12]	21	85	48/1004	Informed consent 51, scientific quality 17, missing information 35, technical quality 16
2007	Finland[12]	20	77	48/1045	Informed consent 84, scientific quality 42, missing information 34, technical quality 16
2007	Brazil[13]	1	68	399/1256	Informed consent 58, method + statistics 77
2010	South Africa[14]	1	43	28/53	Scientific 59, ethics 32, stylistic / grammar 9
2008 - 2012	South Africa[15]	1	98	Ethical queries ranked for 8 principles to guide ethics review of biomedical research[16]	Informed consent 27, scientific validity 21, participant selection 14, respect for participants 14, risk benefit ratio 9, independent review 7, social value 4, collaborative partnership 3

force' and remarked that '… studies of investigator complaints about the long time lags associated with IRB application reviews … raise concerns about workload…'.

After more than 4 decades of experience on four SA HRECs my opinion is that the main criterion for applicant satisfaction with HRECs is the speed with which an ethics clearance is obtained. Committee workload and secretariat staff number as well as quality of applications affect speed.

New general research application numbers per year to the HREC (M) increased from 439 in 2003 to 809 in 2015, an increase of 84%. Administrative staff was one full-time person from 1966 until 2012. Currently there are two full-time administrators plus one temporary person. Many applicants, especially inexperienced ones, imagine that the only activity of the ethics committee secretariat is to receive and send out approvals for research. In reality the workload includes in-coming and out-going telephone calls, emails, direct visits from applicants, dealing with submission of amendments, updating databases, attending meetings and writing minutes, producing letters and clearances to applicants. The workload is increased by the number of applications requiring revisions. Concerning the latter, the percentages of revisions required (Table 2) indicate that the 439 new applications in 2003 were, in reality, 741 (439 + 302 revisions); while the 809 in 2015 increased to 1 489 (809 + 680 revisions). The revisions have to be considered by HREC (M) members with the same attention as the initial evaluation. This is overwhelming for the secretariat staff. Our estimate is that at least four full-time staff is required. However, finance for this is not available at the present time with pressures on university finances, so delays and frustration for researchers are inevitable.

Approval of research involving human participants prior to commencement is a legal requirement[9,10] that cannot be avoided. The longer a delay, the worse off are undergraduates, postgraduates and researchers who are applying for grant funding and who work with short deadlines. When workload exceeds capacity, secretariats and HRECs cannot be held accountable. Institutions have a responsibility to provide facilities and staff. In Catania *et al.*[8] study, in the US, heavy workload per IRB member was commented on but not the number of administrators.

The reasons for the high rate of pending responses to the HREC (M), 5 months after decisions were given to applicants, remain a mystery. The rates range from 16 to 28% between 2003 and 2013 increasing

to an all-time high of 31% in the current study. The result of 31% of the 809 applications in 2015 meant that the HREC (M) secretariat staff and members of the committee wasted an enormous amount of time. No mention of this phenomenon was found in other publications.

While increasing the number of administrators would shorten the turnaround time, the more practical solution at the present time of financial stringency is for applicants to improve the quality of their applications. This would lead to the second objective of the current study, namely reasons for requiring application revisions or for not approving applications.

The pressure to increase research output and postgraduate degrees, mentioned briefly in the introduction, has affected students and staff alike. My belief is that nowadays a greater proportion of the applications received come from inexperienced researchers and inexperienced supervisors, with many having unrealistic expectations. To this one must add overworked heads of departments. Research planning well in advance of deadlines for ethics approval has, I believe, deteriorated, resulting in last-minute submissions and leaving much of a study's weaknesses to be spotted by the HREC (M).

Tables 3 and 4 show the weakness in compiling informed consent documents. Typical problems encountered by the HREC (M) are:

- absence of a greeting and explanation of who the researcher is and the purpose of the study
- using a coercive tone expecting compliance (I want, you will! instead of I want, will you?)
- promise of benefit when there is none
- weakness in outlining risks
- promising confidentiality without explaining how this will be achieved
- problems with clarifying the voluntary nature of participation and ability to withdraw at any time.

Concerning reasons for requiring revision of applications, a different approach was followed by Tsoka-Gwegweni and Wassenaar.[15] They grouped ethics queries to applicants by eight principles in a framework described for the ethics review of biomedical research.[16] The rates per principle are shown in Table 4. The percentage rates are lower than in the current study and other studies in Table 4 because the percentages add up to 100. The other studies used different denominators for calculations of rates. What is important in all the studies is the rank order of problems. Informed consent is the main problem, followed by scientific quality and missing information. Further comparison is not appropriate, due to differing methods used.

Conclusions

Applications to the Wits HREC (M) for ethics clearance almost doubled between 2003 and 2015 while approvals at first evaluation approximately halved. This has increased the workload on the HREC (M) secretariat. Process error rates are similar to those in an earlier study[2] except that confidentiality and discrepancies have shown a statistically significant increase. Given a limitation on the number of secretariat staff in the current stringent financial circumstances of SA universities, applicants need to improve the quality of their applications to increase approval at first review and reduce secretariat workload.

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