Ethics as a Non-technical Skill for Surgical Education in Sub-Saharan Africa

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Abstract

Background In recent years, surgical education has increased its focus on the non-technical skills such as communication and interpersonal relationships while continuing to strive for technical excellence of procedures and patient care. An awareness of the ethical aspects of surgical practice that involve non-technical skills and judgment is of vital concern to surgical educators and encompasses disparate issues ranging from adequate supervision of trainees to surgical care access.

Methods This bibliographical research effort seeks to report on ethical challenges from a sub-Saharan Africa (SSA) perspective as found in the peer-reviewed literature employing African Journals Online, Bioline, and other sources with African information as well as PubMed and PubMed Central. The principles of autonomy, non-maleficence, beneficence, and justice offer a framework for a study of issues including: access to care (socioeconomic issues and distance from health facilities); resource utilization and decision making based on availability and cost of resources, including ICU and terminal extubation; informed consent (both communication about reasonable expectations post-procedure and research participation); research ethics, including local projects and international collaboration; quality and safety including supervision of less experienced professionals; and those religious and cultural issues that may affect any ethical decision making. The religious and cultural environment receives attention because beliefs and traditions affect medical choices ranging from acceptance of procedures, amputations, to end-of-life decisions.

Results and Conclusions Ethics awareness and ethics education should be a vital component of non-technical skills training in surgical education and medical practice in SSA for trainees. Continuing professional development of faculty should include an awareness of ethical issues.

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Introduction

In recent years, surgical education has increased its focus on the non-technical skills such as communication and interpersonal relationships while continuing to strive for technical excellence for procedures and patient care. An awareness of the ethical aspects of surgical practice that involve non-technical skills and judgment is of vital concern to surgical educators and encompasses disparate issues ranging from adequate supervision of trainees to surgical care access. The general ethical principles of autonomy, non-maleficence, beneficence, and justice as outlined by Beauchamp and Childress [1] offer a framework for a study of surgical ethics with an understanding that overlap as in a Venn diagram occurs with ethical issues in the African context (Table 1). Autonomy may include decisions involving the family and community as well as honoring religious beliefs; beneficence requires quality and safe medical care; non-maleficence may involve refusing to provide services outside one’s area of expertise; and justice can include access and affordability as well as research that benefits the community in which it takes place as well as the local researchers. Topics of interest include:

- access to care (socioeconomic issues and distance from health facilities);
- resource utilization and decision making based on availability and cost of resources, including ICU and terminal extubation;
- informed consent (both communication about reasonable expectations post-procedure and research participation);
- research ethics, including local projects, international collaboration, authorship;
- quality and safety including supervision of less experienced professionals;
- religious and cultural issues that may affect any ethical decision making.

Methods

This bibliographical research effort was guided by the practical experiences of the three surgeon authors with long-term practices in sub-Saharan Africa (Kenya, Rwanda, Botswana, and Nigeria) and seeks to report on ethical challenges from a sub-Saharan Africa (SSA) perspective as found in the peer-reviewed literature employing African Journals Online (AJOL), Bioline, and other sources with African information as well as PubMed, PubMed Central. Search terms included “Ethics, Surgery, Africa” and “Ethics and Surgery” combined with African country names.

A brief overview of the cultural and religious environment of SSA provides a backdrop for any discussion of medical ethics because belief systems will influence medical decision making just as they do in the West. The dominant groups in SSA are Christianity (~ 62%) and Islam (~ 30%) with about 3% reporting to be followers of folk or traditional religion [2]. Religious and cultural issues affect many decisions ranging from acceptance of procedures, amputations, and end-of-life decisions [3]. The influence of the traditional beliefs on the followers of Christianity and Islam should never be underestimated. Many researchers who have discussed referral patterns for those who come to allopathic treatment learn that patients have first attempted folk remedies and religious interventions such as prayer houses [4]. “Literature suggests that traditional health practitioners (THPs) play a vital role in the health care of the majority of the South African population and elsewhere on the African continent” [5, 6]. One research team referred to this as “Treatment Blending (TBL), the use by a single participant of more than one of the aforementioned treatment methods for illness” [7].

Autonomy—religion and culture

As the ethics of surgical care and research are examined, the influence of traditional beliefs must always be considered and respected, even in times of disagreement regarding the decisions reached for treatment and procedures. To enter the next world missing a limb may be worse than death. Culture also plays a significant role in decisions; a major tenet of Western medical ethics, patient autonomy, especially that of many African women wherein ultimate decision making belongs to the husband or family, may be diminished when elders or family or community must agree about medical decisions or treatment plans [8]. Even access to care may be influenced by culture and beliefs.

Autonomy—informed consent

Informed consent plays an essential role in both clinical practice and research. The ethics surrounding informed consent involve two areas of medical/surgical practice: (1) consent for procedures with an accurate understanding of risks and benefits and realistic view of post-procedure or treatment outcome; and (2) informed consent for inclusion in a research study with full disclosure in understandable language of any possible risk. Informed consent has cultural, social, and even professional implications as well. In clinical practice, studies reveal that not all surgeons obtain informed consent for every operation or procedure. Patients undergo operations without knowing who will operate or
| Ref. no | Author(s) | Article | Autonomy | Beneficence | Non-maleficence | Justice |
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the reason for the operation or even what operation will be performed. Patient satisfaction was captured in African settings, but little information was found describing patient understanding of possible outcomes from operation including quality of life [9–11]. A Nigerian study of informed consent forms used in 33 tertiary-care facilities revealed a relatively difficult reading level (13–15 years old), absence of information such as permission for transfusion, tissue disposal, and anesthesia risks, with less than 10% mentioning provision for an interpreter or answering patient’s questions, and only about 11% describing specific risks [12]. Just as the role of the physician in Western healthcare has evolved from the final arbiter of decision making to a collaborating partner with the patient (and perhaps family), the view of collaborative decision making will be seen more frequently in the African context as education increases awareness of this issue. An increase in knowledge of litigation is occurring in the African context as well, so this may also play a role as it has in the West [13]. The physician or researcher seeking informed consent must remember to consider community/family decision making in the African context rather than total autonomy of the patient [14–16].

**Beneficence—quality and safety including supervision**

Quality and safety should be aimed for in all areas of surgical and medical care. Quality and safety include supervision of less experienced professional trainees and non-surgeons who perform surgical procedures [17–19]. The literature documents that supervision is sometimes occasional for inexperienced trainees in situations where they may be primary surgical providers. A survey of medical officers in Ghana reported that during their training period they were not supervised for a significant number of the reported procedures (7 of 42 Cesarean sections; 5 of 26 exploratory laparotomies; 8 of 23 inguinal herniorrhaphies; and 4 of 18 appendectomies) [20]. Meara and colleagues in 2015 cited the need for increased supervision of new graduates after formal surgical training as well as for more training and supervision of associate clinicians and general practice physicians who perform operations, anesthesia, or obstetrics [21]. In Kenya, newly trained surgery residents may be posted to district hospitals where they face a number of challenges including lack of supervision in addition to inadequate surgical instruments and low volume of cases. Therefore, a need for improvement is required if the district hospital is to provide a suitable environment for a first posting of newly qualified surgeons [22]. Some countries such as Niger are recognizing the need for regular, if not continuous, supervision of those general practitioners trained to do surgical procedures wherein general surgeons make periodic visits to district hospitals to provide continuing education and supervision [23].

Another ethical issue is the disproportionate burden that women and children bear regarding access to surgery because of lack of safe cesarean sections for obstructed labor and for untreated obstetric fistulas [24].

**Justice and non-maleficence—ethics of international collaboration and “global surgery”**

The increasing interest in international collaboration and “global surgery” from high-income countries in North America [25], Europe, and Asia adds another component for study. Elmin Steyn and J. Edge in the Division of Surgery, Stellenbosch University in Cape Town, provide a succinct and valuable treatise on the ethical pros and cons of surgical tourism (particularly in trauma), surgical education, and research involving institutions outside SSA [26]. A pertinent report from Burundi involves expatriate surgeons who rely on translators (sometimes their host surgeons) to obtain informed consent for surgical procedures [27]. The commercial use of DNA samples collected in Africa by a research center in the UK has come under criticism in 2019 [28].
Justice—access to care, both socioeconomic and location

Because access to safe and affordable surgery has attracted overdue and appropriate attention following the Lancet Report of 2015 where it is part of three of the six surgical indicators of the state of surgical care [29] as well the release of the Disease Control Priorities, Third Edition, Essential Surgery the same year, the ethics of access will be the first area of consideration because, without access, other ethical issues become moot. The lack of health professional human resources in Africa as well as the concentration of health professionals in urban areas is well documented [30–32]. The lack of sufficient surgeons across the continent is being addressed through initiatives of the West African College of Surgeons (WACS), College of Surgeons of East, Central and Southern Africa (COSECSA), Association of Surgeons of South Africa (ASSA), Pan African Association of Surgeons (PAAS) [33], Pan African Academy of Christian Surgeons (PAACS) [34], and other groups dedicated to training surgeons as well as holding high standards for practicing surgeons and providing continuing professional development (CPD). Ethical issues arise when access is complicated by available care that is unaffordable or is scarce as noted for burn care in the Republic of South Africa [35].

The private, for-profit health enterprise is growing but can be expensive. Significant care in SSA has been provided by faith-based medical institutions dedicated to providing services at low cost in underserved and economically challenged areas; but increasingly these hospitals may charge fees too steep for many in the communities. As noted above from the Lancet indicators, grave economic devastation may face families involved in long-term and complex medical care resulting from medical catastrophes such as road traffic injuries, chronic illness, or cancer. African physicians frequently understand medical costs and may factor these into discussions with colleagues as well as treatment options offered to patients. Universal free or low-cost health care, one of the targets of the Sustainable Development Goals (SDGs), is an answer but financing is problematic in low-resource environments [36]. This has been attempted in a number of countries such as Ghana, Tanzania, South Africa, Kenya, and Rwanda through income-based health insurance schemes and other government programs [37, 38].

Access to care includes distance from healthcare facilities as well as financial ability to pay (a problem in the USA [39] as well as Africa). A 2018 study asserted:

We estimated that 287,282,013 (29.0%) people and 64,495,526 (28.2%) women of childbearing age are located more than 2-h travel time from the nearest hospital. Marked differences were observed within and between countries, ranging from less than 25% of the population within 2-h travel time of a public hospital in South Sudan to more than 90% in Nigeria, Kenya, Cape Verde, Swaziland, South Africa, Burundi, Comoros, São Tomé and Príncipe, and Zambia. Only 16 countries reached the international benchmark of more than 80% of their populations living within a 2-h travel time of the nearest hospital [40].

Justice and autonomy—resource utilization including end-of-life decision making

Resource utilization and decision making based on availability and cost of resources, including ICU (if available), are daily concerns of surgeons and other physicians. On a macro-level, some studies seek to understand the economics and resource utilization in the African healthcare sectors [41]. On a micro- or local level, healthcare expenditures and efficiencies are affected by unnecessary operation cancelations, unwillingness to perform terminal extubation, and national formulas that determine resource allocation [2, 42–45]. Terminal extubation and end-of-life decision making are fraught with cultural, ethical, and legal ramifications. Very little data exist about attitudes toward terminal extubation in Africa; for example, 0.2 ICU beds per 100 hospital beds are found in Zambia [46]. At the 2013 Durban Ethics Round Table, participants were asked to respond to the statement, “There is no moral difference between withholding and withdrawing a mechanical ventilator”; of 22 respondents, five were from South Africa (the only African country represented) and four of those five agreed. One salient fact is the lack of specific legal protection in South Africa for withdrawal of support. “Withdrawing of ventilator support is not universal. However, even when withdrawing mechanical ventilation is acceptable, the approach to achieve this end point is highly variable and individualized” [47]. There was majority agreement for many but not all statements describing healthcare professional end-of-life decision making [48]. Only 11 responses, all from South Africa, were in this study for Consensus for Worldwide End-of-Life Practice for Patients in Intensive Care Units (WELPICUS) study [49]. A subsequent article “Adding Africa” was published in 2015. They pointed out the sparse Africa participation and gave a plea for further study in the African context.

Although the definition of appropriate end-of-life care may differ between religions and cultures, and even between fairly similar individuals, the WELPICUS study demonstrates that consensus can be achieved for the
majority of definitions and statements relating to end-of-life practices. Physicians working in limited resource settings and multicultural communities in which critical care and palliative care are relatively young specialties can both contribute significantly to this important discussion and would definitely benefit from being part of this process. We urge critical care and palliative care surgeons and researchers to include colleagues in Kenya, Africa, and around the developing world in future studies so that they are truly “worldwide” [50].

When resources are limited, creating policies that maximize the use of limited resources is a strategy but may still meet objections from both health professions and patients/family [51]. Informed consent becomes a critical factor in any discussion and subsequent decision.

Justice—research ethics, shared authorship, collaboration, informed consent, and use of African literature databases

Research required of surgery trainees for their accreditation as well as all research efforts that involve collaboration with international partners raise ethical issues surrounding equality of sharing credit. Everyone who makes a significant contribution should be an author or at least acknowledged [52–54]. Other factors include seeking ethics board approval before data gathering begins and assuring that collaborators will receive appropriate recognition for their efforts. When collaboration involves international partners, appropriate recognition for all those involved becomes more complex, especially when results are ready for publication [55]. Authorship rules vary widely and some Western groups such as the International Committee of Medical Journal Editors (ICMJE) set such strict guidelines that important contributors could be relegated to acknowledgment rather than authorship if they must meet all four criteria (drafting design, writing or revising, approving, and accountable for accuracy) when, in fact, meeting even one of the criteria likely made the project possible [56].

Evidence-based medicine relies on research done in varying environments. Research into appropriate treatments and procedures in the African context is vital. Using Western-generated protocols may be acceptable in the short term, but studies should be developed that seek answers in the local environment. Employing literature databases such as AJOL and Bioline increases the exposure to African-generated research. Using only predominantly Western-focused databases has some ethical shortcomings. International collaborators must be intentional in including African colleagues in research projects from the planning stages through the completion, data analysis, and final written reports and must offer co-authorship as well as acknowledgment for contributions [57]. For example, Chu and colleagues, in their study on research collaboration in Africa, point out that in Rwanda, legal as well as ethical guidelines pertain to involving local investigators in research projects and the subsequent authorship for published reports [58]. Rwanda Ministry of Health documents state: “In the event that the PI is foreign, it is important the Rwandan collaborator be a co-PI on any publication, consistent with the guidelines for authorship addressed in the Roles and Responsibilities of Investigators document” [59]. “Does the investigator team have a local Rwandan Investigator(s)? Not applicable if Principal investigator is a Rwandan. All research investigation teams must have a minimum of 30% of Rwandan Investigators” [60]. A perception exists in Africa that international collaborators may be exploiting African researchers and promoting non-sustainable efforts if capacity building is not included in the research efforts [61].

Only one of the vital ethical issues that researchers must consider as they formulate research protocols, informed consent, requires the development of a comprehensible document in the appropriate language of the subjects and the assurance that it is read (or read to a subject unable to read) and signed. In one study of 114 articles published in five peer-reviewed Sudanese medical journals, informed consent was not documented in 69.3% of the articles, and surprisingly, 88.6% of those researchers failed to report approval by an ethics body [62]. Cultural and religious norms must be considered in any project requiring informed consent. For example, “Nigeria is socio-culturally diverse in terms of language, religion, economy, and traditions. Investigators require adequate familiarity with the local socio-cultural characteristics in order to meaningfully communicate the research purpose and method upon which free and informed consent is based” [63].

A recent addition to research effort in SSA is mobile phone usage for collecting and sending research data. How the data are used and other ethical issues are in the early stages of study as reported by Ossemame and colleagues [64]. Also, online data collection and storage methods such as REDCap (which may be institution-based in the West as well as in Africa) [65] focus attention on the issue of data ownership and how data are used. Assuring research participants of privacy and confidentiality is a hallmark of ethical study design.

Results and conclusion

After reviewing the literature concerning ethical topics in surgical and medical practice in SSA in light of the practical experience of the three surgeon authors, the ethical issues arising from the practice of surgery with the
intention to address the challenges should be a vital component of training in SSA and elsewhere. Potential ethics curriculum topics based on principles of autonomy, beneficence, non-maleficence, and justice include: informed consent and patient comprehension; confidentiality and protecting patient data; end-of-life decision making; access to appropriately trained medical professionals; resource utilization; and research ethics. Leadership and advocacy are required to implement additions to training curriculum; therefore, the issues raised should be added to the continuing professional development of practicing surgeons, academic faculty, and other health professionals. As the various surgical societies and associations seek to raise standards, improve safety and quality, and create more uniform curricula for trainees across the continent, surgical ethics should be a core subject.

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**Compliance with ethical standards**

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