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Supplementary appendix

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The *Lancet* Commission on medicine, Nazism, and the Holocaust: historical evidence, implications for today, teaching for tomorrow

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Appendix

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Supplement A:
Primer for education on medicine, Nazism, and the Holocaust

Introduction

The goal of this primer on medical education is to offer comprehensive, user-friendly, and state-of-the-art information that may enhance instruction in the field of medicine, Nazism, and the Holocaust through the paradigm of history-informed professional identity formation beyond the roadmap provided in parts 5 and 6 of the report. Additional information on the two supporting paradigms— competency-based medical education[1] and the Informative-Formative-Transformative learning paradigm[2]—can be found in the first part of this supplement.[3,4] Developmentally aligned competencies are delineated and integrated with the Informative-Formative-Transformative paradigm,[2] while expanded introductions to these educational concepts are provided. Further, learning outcomes are described as the basis for curriculum design, outlining and mapping them to the different educational concepts and providing two examples (the same as in part 6, albeit mapped to CanMEDS roles). Next, the supplement makes available an expanded discussion of pedagogies and assessment. Lastly, it briefly presents multiple examples of existing syllabi and describes options for the organization of instructional modules. Supplement C presents a fuller roster of existing curricula.

Competency-based medical education

Competency-based medical education is defined as "an approach to preparing physicians for practice that is fundamentally oriented to graduate outcome abilities and organized around competencies derived from an analysis of societal and patient needs."[2] It is largely accepted as the current operationalization of health professions education, with curricula translated into the desired end-competencies.[5] The main rationale for competency-based medical education is the observation that many health professionals are licensed based on deficient evaluation criteria, thus falling short of assuring the public that it may have full trust in professional credentials.[6] Different competency-based medical education frameworks, such as CanMEDS (Canada)[7] and ACGME's (USA),[8] exist. CanMEDS – the oldest and most internationally prevalent methodology – has been adopted for this report.[7] All competency-based medical education frameworks de-emphasize time-based training and provide greater accountability, flexibility, and learner-centeredness.[2,4,7] CanMEDS is in a process of revision for 2025 and in preparation related scholars have identified 10 relevant themes for the update, including Equity, Diversity, Inclusion, and social justice; anti-racism and physician humanism.[9] Expressing a minority opinion, critics of these frameworks lament its over-standardization.[10]

As education has moved away from delivering "content," i.e., learning offered through lectures, it struggles with the fact that lecture-based knowledge transfer remains the most prevalent model.[4] Medical knowledge is a competency of the medical practitioner, but medical experts described by the CanMEDS framework are proficient in other competencies too (Figure 1S),[11] and it is the seamless integration of all competencies that defines the medical expert. Recently, the Medical Council of Canada, which developed CanMEDS, issued the following proposal:

> "… a model of graduated licensure that would have three stages including: a trainee license for trainees that have demonstrated adequate medical knowledge to begin training as a closely supervised resident, a transition to practice license for trainees that have compiled a reflective educational portfolio demonstrating the clinical competence required to begin independent practice with limitations and support, and a fully independent license for unsupervised practice for attendings that have demonstrated competence through a reflective portfolio of clinical analytics."[12]

The model thus couples Competency-Based Medical Education, reflection, and portfolio pedagogies, with licensure. Medical education scholars describe Competency-Based Medical Education as the core component of healthcare transformation.

Figure 1S: Copyright © 2015 The Royal College of Physicians and Surgeons of Canada. https://www.royalcollege.ca/rcsite/canmeds/canmeds-framework-e Reproduced with permission; CanMeds[11]

The informative-formative-transformative framework of learning

Robert Kegan, a developmental psychologist, first formulated the paradigm of informative-formative-transformative learning.[13] He describes the informative stage as simple knowledge acquisition, formative learning as a change in the frame of mind of learners, and transformative learning as the ability to understand abstract implications from the learned facts and apply them creatively to new contexts. Interestingly, Kegan's example includes the effects of learning about and from history.[13]

> "… the informative sort might involve the mastery of more historical facts, events, characters, and outcomes. But further learning of a transformative sort might also involve the development of a capacity for abstract thinking so that one can ask more general, thematic questions about the facts, or consider the perspectives and biases of those who wrote the historical account creating the facts. Both kinds of learning are expansive and valuable, one within a pre-existing frame of mind and the other reconstructing the very frame."[14]

The informative-formative-transformative paradigm, highlighted by the 2010 Lancet Commission on Medical Education, aims at fostering the development of health professionals that are 'enlightened change agents' at the transformative level, in tandem with a transformed healthcare system.[2] The authors describe for informative learning the objectives of information and skills acquisition to form experts; for formative learning the objectives of socialization and integration of values to form professionals; and for transformative learning the development of leadership attributes to form change agents.[2] The American Medical Association has embraced this model and has formed the "Transforming Medical Education through the Accelerating Change in Medical Education Consortium," which competitively recruited and funded thirty medical schools to form and transform graduates,[14] with the goal of transforming their institutions to initiate an effective change of the nation's healthcare system.[15] This report was re-visited in 2022 with encouraging information about the dissemination and implementation of the 2010 recommendations and about the proliferation of formative and transformative education overall.[4] The commissioners also considered the dramatic transformative and disruptive impact of the pandemic, especially the leap of on-line and remote care and education into the mainstream.[4]

While formative and transformative learning is gradually introduced during the early stages of medical education and is expected to foster professional identity formation processes,[2] it

is not yet part of summative assessment in medical education. Empirical evidence of the formative and transformative nature of learning the history of medicine, Nazism, and the Holocaust exists from educators and researchers in the field, who testify that it transforms them and their students. The first qualitative assessment studies reflect the validity of these perceptions (Panel 1S).

This Lancet Commission contends that the goals of medicine, Nazism, and the Holocaust education fit well this framework of information, formation, and transformation, and further explores the paradigm in this report for educational programming while hoping it will eventually find its place also in summative assessment.

Panel 1S: Formative and transformative learning of medicine, Nazism, and the Holocaust

Student experiences recalled by educators Shmuel Reis, Esteban González-López, Rosa Rios-Cortés, Hedy S. Wald, Sabine Hildebrandt, and Matthew Fox

The empirical evidence for many educators in the domain of medicine, Nazism, and the Holocaust has been that their instruction had formative and transformative impacts on learners. However, most of these teachers did not describe outcomes in such terms, a fact that only changed in recent years.[16-23] In 1999, Shmuel Reis recalls, a 5th-year medical student from the Rappaport Faculty of Medicine at the Technion University in Haifa, Israel, gave feedback on a day-long visit to a Holocaust Museum, noting “It all has to do with our conscience as future physicians.”[16] This remark Shmuel Reis recognized as evidence of formative learning.

Transformative learning experiences for students have been described by Esteban González-López, and Rosa Rios-Cortés in their courses and study-trips with Spanish medical students from the Autonoma University, Madrid, Spain: “the students who participated describe it as an overwhelming experience, emotional and moving. In fact, they consider it a pivotal event, demarcating a ‘before’ and ‘after’ in their lives.”[17] Participants of a webinar on the 2022 International Holocaust Memorial Day by Sabine Hildebrandt and Hedy S. Wald[18] shared similar reflections. In the Goldman Medical School, Ben Gurion University of the Negev, Beer-Sheva, Israel, a student taking a required in-person medicine, Nazism, and the Holocaust course in 2022,[19] described her formative experience: “there is some comfort in the image of the ideal physician that I carry, and it is easy to identify myself as one… Suddenly I was invited to face an entirely different image,” and another: “the crucial question… became: how do I internalize this learning in order to make right choices.”[19] A third, reflecting on an elective she took two years ago, wrote:

“Two years ago I attended weekly lectures on medicine during the Holocaust…The course made me think about … vulnerable and disadvantaged populations in society today. …I live on the south side of Tel Aviv, which has some streets … feel like you are in a third-world country. … one can get a glimpse of hell on earth… around me homeless people who are a shadow of themselves, with bent backs, sunken eyes, and rotten teeth. They live by my side, ... wounded, ... It’s just another day in their lives while I ride past them, making my way to the train station, going to acquire a medical education, to learn how to heal. …. The indifference weighed on me and I was looking for a ...a platform that would give me the opportunity to be by these people’s side and stop ignoring them. I discovered the “Street Medicine” project, where I had the privilege of meeting doctors and fellow medical students who decided to make a different choice and take action. …. I look back at my reflective essays from the course on Medicine and the Holocaust, and see the hopes I expressed for myself in writing; to recall compassion, to make courageous choices, …. I am learning all these attributes from the physicians I have met, …Life on the street is not the Holocaust …. But … Standing up and .. help… and to be cognizant of the privilege of being on the side of the ones who can give. I choose not to ignore, to be a student and become a physician with open eyes and outstretched arms, ready to assist those who society has forgotten behind.”[19]

In June 2022, Hedy Wald accompanied 19 medical students from the Oakland University William Beaumont School of Medicine, Rochester, Michigan, USA, on an educational study trip to Auschwitz, and observed from their writings and discussions they appeared to have changed through a transformative experience. One student qualified it as an “eye-opening and life-changing” experience that taught her the importance of humanism.[20] In a recent paper, Wald’s group describes an educational intervention at the Witten/Herdecke Medical School in Germany that also included a study trip to Auschwitz, as well as reflective work. The authors conclude that: “This curriculum catalyzed a critically reflective learning/meaning-making process supporting personal and Professional Identity Formation including…critical consciousness, ethical awareness, and professional values...”[21]

These reflections represent the experience of many educators in this commission and constitute empirical evidence for teaching of Medicine, Nazism, and the Holocaust resulting in formative and transformative learning. The weight of this history itself is often enough to have this impact, however, certain pedagogies stand out as having added value in reaching this goal. Educators leading study trips to relevant sites in Germany, Austria, and Poland have documented such impact.[21-23] Testimonies and interviews – read, viewed or in-person have such impact as well.[21] A course or study trip with associated reflective writing supports the processing of emotions, insights, and formative/transformative learning.[21] The combination, for example, of a guided visit to a memorial site with testimonies and reflections may constitute a whole that is much greater than its parts.[22] Documented results following the implementation of curricula on the history during Nazism and the Holocaust include increasing awareness of bioethical issues in medicine.[23] And in the context of the nursing professions, these curricula show results in supporting nursing students’ professional identity formation and attitudes toward ethical conduct,[25] as well as cultivating nurse practitioners as “critical intellectuals” with increased willingness to engage in social advocacy.[26] However, educators in the field still need to provide further and higher order evidence for these claims. In addition, increased precision in design, pedagogy, assessment, and implementation are likely to result in a more accurate documentation of the impact in terms of formative and transformative learning.

Curriculum development for medicine, Nazism, and the Holocaust

Implications of the evidence-based history (parts 1 and 2) are described in parts 3 and 4 of the report. Here, we re-visit and expand the curricular examples from the report by mapping them to the different domains of Competency-Based Medical Education as described by CanMed, in conjunction with levels of informative-formative-transformative learning. Panel 2S is an overview of learning outcomes, followed by two curricular examples demonstrating an analysis of learning level and domain (Panel 3S, A and B).

Panel 2S: Learning Outcomes from basic to advanced and informative-formative-transformative (mapped also to competencies)

Domains of Competency: Communicator-Com; Collaborator-Col; Manager-M; Health Advocate-HA; Scholar-S; Professional-P (Figure 1S)

Upon completion of a stage of the professional training cycle, all health professions learners should be able to:

A. Basic / Informative Learning Outcomes
1. Explain briefly what the Holocaust was, who were the perpetrators and victims, what we mean by Nazi and definitions of genocide, antisemitism, racism, and other forms of discrimination. **S, P, HA**
2. List the core facts on the involvement of health professionals with the Nazi regime, including in eugenic sterilization and 'euthanasia' programmes, the exclusion of Jewish health professionals, coercive human subjects' research, and connections from these programmes to the Nazi genocide of European Jewry, and mass-murder of Sinti and Roma and other persecuted populations. **S, P, HA**
3. Describe and reflect on actions and experiences of Jewish and non-Jewish health professionals who resisted during this period, especially in ghettos and camps. **S, P**
4. Describe, explain, and reflect on the moral failures and transgressions of health professionals and the medical-scientific establishment during Nazism and the Holocaust, and if, why and how they might have a role in post WWII bioethics. **S, P, HA**
5. Apply insights from the history of Medicine during Nazism and the Holocaust to contemporary issues in health care **S, P, HA**

B. Intermediate /Formative Learning Outcomes
1. Describe how professional ethical standards can arise from or be affected by changing social norms, using examples from the history of medicine, Nazism, and the Holocaust. **S, P**
2. Recognize, describe and reflect on features of this history such as the existence of a coercion-resistance spectrum and the existence of underlying dynamics for health professionals (e.g., potential for abuse of power, need to navigate conflicts of interest, threat of dehumanization of patients) that are illustrated in this history. **P, S**
2. Integrate knowledge of this history **to describe** what it means to become a health professional today, including in explaining the privileges and obligations of health professionals in contemporary society. **P, S, HA**
4. Demonstrate moral development within professional identity, **identify and navigate** potential value conflicts for oneself and **model** moral agency and courage. **P, HA**

C. Advanced/Transformative Learning Outcomes
1. Review and critique implications of this history for me, my department/discipline/institution, my healthcare and academic system, and relevant policy. **M, Com, Col, HA, P, S**
2. Integrate the history of Medicine, Nazism, and the Holocaust to **describe, reflect upon and manage** conflicting obligations as a health professional. **S, P, COl**
3. Apply the history of medicine, Nazism, and the Holocaust to **describe, reflect** upon and be **sustain** appropriate levels of humility as a health professional and in regard to scientific theories and their application for patients and communities. **P, HA**
4. Analyze the history of medicine, Nazism, and the Holocaust to **describe, reflect upon and uphold** human rights[27] and the dignity of patients and groups the profession serves. **S, P, HA**
5. Apply transformed change for oneself, group and system, based on the learning of the implications of medicine, Nazism, and the Holocaust. **Col, Com, HA, P, S, M**

At all levels, the Informative-Formative-Transformative framework may be applied. For example, an informative educational module can have basic, intermediate, and advanced components, when for example it spans a semester; and a transformative module can be pitched at a basic level in a single 90 minutes' webinar.

Panel 3S Curricular examples
Panel 3S A: A semester-long course

The Holocaust, A Reflection from Medicine. Professors Esteban Gonzalez-López and Rosa Rios-Cortés. Universidad Autónoma de Madrid, Spain.

Background: In 2011, the Universidad Autónoma de Madrid, Spain, announced a call to faculty members for the design of new elective subjects related to human rights and the combating of all forms of discrimination. These elective courses were designated as complementary curricula to be included in the European Higher Education Area (EHEA). The following syllabus was designed to fulfill these requirements. The course can be accessed by any students in any year of their studies and there are 40 slots per academic year.

Goal
- Comparing the characteristics of the current medical profession (set of skills, attitude and values which prove that the physician earns the trust of his/her patient and society) with the actions during the national socialist period. **P, S**
- Analyzing the meaning of the Holocaust in the creation and development of rules regarding human testing during research. **P, S**
- To develop respectful attitudes towards gender, cultural, health and other differences. **S, P, HA**
- To contribute upholding and building Professional Identity Formation (PIF), in the steps Basic/Informative and Intermediate/Formative. **P, S**

Learning outcomes
- To promote critical and self-critical reasoning. **P, S**
- To maintain ethical integrity and concern for professional ethics. **P**
- To recognize the essential elements of the medical profession, including ethical principles, legal responsibilities, and the professional activity regarding the patient. **P, HA, Comm, COL, M**
- To understand he importance of such principles for the patient's, society's and profession's benefit, especially regarding the patient confidentiality. **P, HA, Comm, COL, M**
- To make use of social justice during the professional practice and understanding the ethical implications in a world in constant change. **S, P**
- To practice medicine respecting the patient's autonomy, beliefs and culture. **P**
- To know the fundaments of medical ethics and deciding on moral dilemmas. Practicing medicine with excellence, altruism, sense of duty, responsibility, integrity and honesty. **P**

- To acknowledge the economic and social implications of the medical activity regarding efficiency. **P, M, Coll, Comm**

Content
- Historical frameworks (1918-1945)
- Workshop on how to analyse written and audio-visual documents
- The role of Nazi doctors and nurses in Eugenics and the so-called Nazi Euthanasia (Aktion T4)
- Jewish doctors in ghettos
- Nazi doctors in concentration and extermination camps
- Medical experiments in camps
- Medical and psychological consequences on Holocaust survivors. Traces of the Nazi period in Medicine today
- Lessons from the Holocaust for present day Medicine

Pedagogy
- Each module lasts two hours. In every session:
  - 20': facilitator briefing and comments on the previous lesson and the assignments made by the students
  - 60': Lecture and viewing of recorded materials
  - 15': Discussion on the lecture, answering of questions and information about the next task

Discussion in small groups and meeting a Holocaust survivor are used whenever possible. The methodology encourages participation and debate.

Assessment
Every week, each student prepares a written reflective assignment on one of the case studies presented based on documents that includes testimonies of victims, statements of Nazi doctors and descriptions of ethical dilemmas. In the last module, called "Lessons from the Holocaust for present day Medicine", students are encouraged to search the media for any examples that illustrate a breakdown in ethical values (degradation of professionalism, misuse of physicians' power, research limits, or doctor-government collaboration) in recent times. The aim with this activity is to make the students aware that the events discussed in class could, in fact, happen again.
On completion, they upload their finished exercises onto the online learning platform, Moodle®. There is no exam. The final grade is an average of all the assignments submitted. A pre/post questionnaire on some bioethical issues is carried out among the students at the beginning and at the end of the course as a compulsory assignment. The students are also tasked to express their opinions on the subject and how to use what they learnt in their future career.

Class activities
Lectures, discussion in small groups, meeting a Holocaust survivor whenever possible.

Schedule & content
- In every session
  - 20': facilitator briefing and comments on the previous lesson and the assignments made by the students
  - 60': Lecture and viewing of recorded materials
  - 15': Discussion on the lecture, answering of questions and information about the next task
- See at https://www.academia.edu/44098540/The_Holocaust_A_Reflection_from_Medi-cine_Syllabus_and_Resources_compiled_2020[28]
- Gonzalez-Lopez E, Rios-Cortes R. Medical student's opinions on some bioethical issues before and after a Holocaust and Medicine course." Israel Medical Association Journal 2019; 21: 298.[23]

Panel 3S B: A 75-minute intervention

Legacy of Medicine During the Holocaust and Its Contemporary Relevance, An introductory session on medicine, Nazism, and the Holocaust[18]

Hedy S. Wald, Sabine Hildebrandt

Medical Education Webinar for the American Association of Medical Colleges (AAMC) – International Holocaust Remembrance Day—January 27

Background: Recognizing the importance of history for understanding contemporary circumstances and confronting future challenges, leaders of the American Association of Medical Colleges [AAMC] sought a 75-minute online session to be held on International Holocaust Remembrance Day—January 27, for an international audience of students and health care practitioners. Materials for post-webinar Critical Reflection Sessions were also sought, to facilitate reflective learning from this history. The first iteration of the webinar occurred on January 27, 2022.

Goal: Provide core information on the history of medicine, Nazism, and the Holocaust and contemporary implications for the global community of health care professionals, with opportunities for reflection on the relevance of this history.

Learning objectives*:
After the session, participants will be able to:
1. Discuss why learning about and reflecting upon egregious ethical transgressions of physicians and the medical establishment during Nazism and the Holocaust is necessary within medical education for cultivating morally resilient lifelong professional identity formation and promoting/preserving humanistic healthcare. **P, S**
2. Describe examples of the history of healers becoming killers, as well as examples of health professionals who demonstrated moral courage and resistance and the implications for oneself as a health professional. **P, S**
3. Recognize contemporary relevance of the legacy of health professionals' involvement in Nazism and the Holocaust when facing ethical dilemmas, potential abuse of power, competing loyalties, need for moral courage, and diversity/equity/inclusion issues in clinical practice, research, as well as public policy and contemporary societal issues of preserving human dignity. **P, S, HA, Comm, Col, M**

Content:
1. Introduction – relevance of this history for fostering professional [moral] identity formation
2. Key points of the history of medicine, Nazism, and the Holocaust from the beginnings to the Nuremberg medical trial
3. Examples of moral courage of Jewish ghetto physicians and "Righteous Among the Nations" under oppression
4. Personal story of Holocaust suffering and survival
5. Implications: echoes and patterns of the past in the present

Pedagogy:
- Webinar lecture and slides and short video clips, alternating between 2 presenters (a physician-historian and a social scientist-medical educator)
- optional reflective discussion and writing prompts from art or case studies for use locally

Assessment:
- Post webinar survey evaluating self-assessed impact of the webinar on personal learning and actions, with opportunity for comments e.g. pertaining to formative learning.

Conclusions:
- The webinar presented opportunities for informative and formative learning, as well as content for reflection to achieve transformative learning.
- Evaluation results show that the webinar achieved formative learning for some attendees.
- Transformative learning cannot be assessed with a survey immediately after an intervention; longitudinal assessment can potentially be helpful for assessment.

See: January 27, 2022. AAMC Virtual Seminar: Legacy of Medicine During the Holocaust and its Contemporary Relevance on Vimeo [accessed Oct 9 2022][18]

Curriculum development for medicine. Nazism and the Holocaust integrates the historical evidence and its implications within competency-based medical education, professionalism, and professional identity formation into the proposed paradigm of history-informed professional identity formation as core to the moral education of the health professional. In addition, we propose mapping curricula to a basic-advanced and informative-transformative levels.

Next, Kern's widely accepted framework for medical education curriculum development, mentioned in part 6 of the report and comprised of a six-step sequence,[29-31] is applied here to the domain of medicine, Nazism, and the Holocaust,[2,5,30,32] and presented in Panel 4S.

Panel 4S: Building a new medicine, Nazism and the Holocaust curriculum[29]

1. **Problem identification and general needs assessment**: identify problems and needs in the overall curriculum that may be best addressed by a medicine, Nazism, and the Holocaust curriculum.
2. **Targeted needs assessment:** Once a need/problem is agreed upon and an instructional module title given, specify it for its constituent needs/problems.
3. **Goals and Objectives:** For the curricular component identified in step 1 and 2
3.a **Consult Core Implications** (parts 3 and 4 of the report) for fit of medicine, Nazism, and the Holocaust history implications to be best operationalized in your module
3.b Formulate your/the programme **learning goals, objectives and outcomes** and choose the best fitting learning levels (Basic/ Intermediate/ Advance/ and Informative- /Formative or Transformative).
3.c **Search history section** (parts 1 and 2, Supplement B of the report) for best fitting historical narratives and case studies for your learning outcomes.
4. 4.a Decide on **educational strategies:** identify pedagogies that best fit your goals and case studies.
4.b. Search the **curricula examples** for relevant existing instructional modules (Supplement C)
5. **Evaluation/Feedback**: choose assessment for your former choices.
6. **Implementation:**
6.a Consider time allocated, audience, resources, acceptability, and feasibility. Adapt your curriculum to these parameters.
6.b Draft your implementation strategy
6.c. Finalize your curriculum

For a long time, educators used learning objectives (which are not associated necessarily with evaluation of their achievement as they are aspirational) to describe curricular intentions.[33] Recently, learning outcomes are preferred as they fit better a competency-based-medical education approach and represent what a student is expected to be able to accomplish (and can be assessed on) rather than what the teacher had in mind when designing the module.[33-35]

Panel 5S: Why and how to create a new curriculum on medicine and the Holocaust: Example of the Temerty Faculty of Medicine at the University of Toronto, Canada

The Temerty Faculty of Medicine at the University of Toronto, Canada was among the many academic institutions that saw an increase of political tensions before and during the years of the COVID-19 pandemic. Divisions had been developing among faculty and students, accompanied by public debates and discussions, as well as antisemitic and other hateful rhetoric. When Richard Horton's 2019 editorial about Medicine and the Holocaust was published,[36] there was debate among Jewish educators as to whether implementing Holocaust education would help the situation or inflame antisemitic sentiments further. It became clear that any potential improvement in the situation at the medical school would require an educational intervention. Thus, the medical school introduced a new session into its ethics curriculum entitled 'Physicians, Human Rights, and Civil Liberties: Lessons from the Holocaust: A two-hour session for second year medical students' (see Supplement C18), which focuses on the concept of moral courage. By the time the session was ready to be delivered for the first time, antisemitism had further worsened on campus and the University of Toronto had empanelled a fact-finding antisemitism working group.[37] The session served as a touch point for the faculty to state that it was actively addressing antisemitism, but problems remained; the faculty then agreed to create a general teaching session on religious discrimination that would include antisemitism, as well as Islamophobia and other forms of religion-oriented hate. Over the following months, they also established the position of a senior advisor on antisemitism and funded a post-doctoral fellowship in 'Antisemitism in Healthcare.'[38] While antisemitism remains a problem at the University of Toronto, these educational interventions may serve as a measure to prevent further worsening and hardening of these attitudes within future physicians.

Pedagogies

Medicine, Nazism, and the Holocaust teaching within the informative-formative-transformative paradigm requires educational methods beyond the time-honoured lecture.[2,4,5,39] Lectures are an efficient modality especially for larger audiences and will continue to be used.[4-6] However, learning can be more effective through active learning strategies in individual or small group experiences in and out of the classroom, as well as for large audiences.[2,4,39-41] Active learning also fosters the acquisition of professional attitudes and values, professional identity formation, moral & conscience development, and personal transformation, integrated with knowledge and skills acquisition.[2,4,41] Lectures may be enhanced by hybrid or flipped classroom (cognitive content on-line, elaboration in class),[42] multi-media,[43] and reflective activities.[44,45] Moreover, reflection, face-to-face interactive courses, hybrid (combined on-line and face-to-face),[46] as well as so-called massive open on-line courses (MOOC) show enhanced effectiveness.[47] Additional pedagogical options include webinars that more easily allow the engagement of leading scholars from multiple institutions,[18,48,49] with state-of-the-art resources, lectures, panel discussions and debates, as well as innovative educational interventions such as post-event guided reflection activities.[18,50,51]

The literature on bioethics education is far more extensive than that on medicine, Nazism and the Holocaust, thus frequent extrapolation from this domain is useful.[52] A recent review of bioethics curricula reported innovative ethics instruction with active learning pedagogical approaches including reflective practice and peer-learning.[53] Bioethics education often relies on a sequence of presenting clinical scenarios, identifying pertinent ethical issues, creating a plan to navigate them, and a rationalization of relevant decisions with ethical principles.[54] Similarly, medicine, Nazism, and the Holocaust pedagogy is very effective when based on a historical case and applied by active rather than passive instruction.[55] Additional recent innovations in bioethics education include one on topics in psychiatry,[56] a 4-year longitudinal interactive ‘leadership through ethics’ curriculum,[57] and use of technology-supported ethics instructional designs such as virtual reality for an immersive learning experience and game-based learning.[58]

Much of this spectrum of bioethics education pedagogies can be adapted to teaching on medicine, Nazism, and the Holocaust, as specific best practices for teaching in this domain are lacking as of now. This leaves ample room for educational innovation through adapting the approaches discussed so far, as well as cine-education,[59] visits of suitable exhibits (such as “Deadly Medicine,”[60] German radiology,[61] the permanent exhibition at the Medical History Museum Vienna, or the Sachsenhausen virtual tour[62]) or even ‘trigger films’ as so-called ‘didactic icebreakers’.[63]

Specific pedagogies in medicine, Nazism, and the Holocaust with potential transformative impact include study-trips,[22,64] testimonies, and interviews.[65,66] Combinations of excursions, testimonies, and reflective writing have specific added value in medicine, Nazism, and the Holocaust instruction (see Panel 1S). Practical advice in planning a new programme is summarized in Panel 6S.

Panel 6S: Practical advice on teaching medicine, Nazism, and the Holocaust

- Always present teaching about medicine, Nazism and the Holocaust in the (evidence-based) **historical context**.
- Carefully choose the **resources** to be used.
  a. Use evidence-based resources such as books or papers of renowned and reliable scholars, or reports/recommendations from vetted institutions. Internet resources alone are not always reliable and may present falsities and distortions.
  b. Avoid the use of horrific images of Nazi medical atrocities, as they usually convey the perpetrators’ gaze.
- Avoid simplistic comparisons but expose the students to the **medical crimes** committed by health care professionals in Nazi Germany, and at the same time expose the learners to possible transgressions of ethical values in the present day. Domains of such transgressions are discussed in the implications section of the report and revolve around:
  a. Ethical dilemmas
  b. Value of human life
  c. Collaboration between health professionals and the state
  d. Limits of research
  e. Misuse of health professionals’ power
  f. Ethical behaviour in difficult situations
  g. Influence of economic and political factors on medical practice
  h. Allocation of resources
- Put the **person in the centre** of teaching and learning process of medicine, Nazism, and the Holocaust. Transform statistics into persons e.g., with case studies of victims, survivors, bystanders, collaborators, and perpetrators of medical crimes.
- Highlight how professionals **resisted** in those circumstances.
- Address **all forms of discrimination** in the health-care setting, including, but not limited to: antisemitism, racism, xenophobia, anti-gypsyism, Islamophobia, and prejudices against persons from LGBTQX community.
- Use written or recorded **testimonies** of victims and survivors as a resource. If possible, invite Holocaust survivors to the educational intervention.
- Design a **student-centred active and reflective methodology**, so that learners can contemplate the role played by health professionals, as well as their collaborators and institutions in Nazi Germany. Actively engage learners by visits to relevant sites and museums, use images, documentaries, testimonies, artifacts, and documents.
- Encourage **active learning** in lectures, too.

Assessment

Assessment of educational interventions may be conceptualized in the following manner: - using Miller’s Pyramid that describes four levels (Figure 2S).[67] This model was recently expanded with a fifth level operationalizing competency based medical education as “entrusted,”[68] - following five features: reliability, validity, acceptability, feasibility, and educational impact.[69,70] While the first two of the five relate to their psychometric properties, the following two refer to practical aspects of assessment administration. The fifth, “educational impact”, is often related to formative assessment and feedback and is likely the most important for medicine, Nazism, and the Holocaust instruction and similar foundational domains.

In the medicine, Nazism, and the Holocaust context, it would be important to specifically assess learner moral attitudes, values, behaviours, professional identity formation, and professionalism, which are all difficult to evaluate by observation of clinical performance only (the “does” and “entrusted” levels of Miller’s pyramid, Figure 2S).[67,68] Some of these constructs may be “unmeasurable” at times[72] and compel creative assessment modalities, many of which are based on subjective assessors’ judgements. Multiple such judgements by trained assessors have the potential of supplying trustworthy evaluations.[71]

Modalities for assessment of professionalism, professional identity formation, and ethics include written exams, self-assessment, performance assessment, rating scales, multi-source feedback, critical incidents reports on lapses, observation and feedback, moral reasoning assessments, and professionalism mini observations.[73, 74, 75] Situational judgment tests measuring the construct of integrity are also available and used primarily

for admissions to educational programmes, but could potentially be adapted for capturing the impact of medicine, Nazism, and the Holocaust learning.[76,77] In addition, reflective writing and assessment of reflection levels[78] have been described as a "window" into professional identity formation.[78] Panel 7S stratifies assessment modalities by their Miller pyramid level,[67] and Panel 8S lists suitable assessment options.

Finally, most postgraduate ethics education assessments are not yet scrutinized as to their five attributes, neither have they been employed yet for medicine, Nazism, and the Holocaust instruction assessment and such confirmatory evidence is needed.[74]

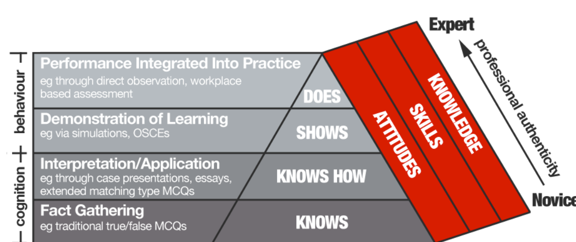


Figure 2S: Miller's pyramid or "Miller's Prism of Clinical Competence"[67]

Panel 7S: Assessment methods of education on medicine, Nazism, and the Holocaust classified by Miller's pyramid levels.[67]

Knows: multiple choice questions, assessment of learner's ethical knowledge, comparison of knowledge before and after teaching, clinical scenario-based multiple-choice questions
Knows How: essays, assessment of knowledge application through a clinical scenario-based essay, short answer questions, debates, ethical case deliberation assessment
Shows, Shows How: observations, as part of an objective structured clinical examination (OSCE)
Does: Evaluation based on observation in clinical settings, may include the so-called 360-degree evaluation approach, evaluation of ability to apply content, identification of ethical concerns, ability to analyse and rationalize decisions, individualized feedback from patients and/or simulated patients, tutors and medical professionals, Portfolios.

Panel 8S: Assessment options

1. Learners' surveys: post-intervention satisfaction, self-assessment of learning outcomes, also in a before-after format
2. Knowledge & attitudes tests: A knowledge and attitudes questionnaire was developed in parallel in Germany and Israel and is now under revision.[83]
3. Observation of clinical performance:[149] Mini-CEX (Mini-Clinical-Evaluation-Exercise),[154] Mini-PAT (Mini-Peer-Assessment-Tool)[155] (see more in Supplement A)
4. Defining Issues Test 2 (DIT 2):[150] A moral sensitivity vignette-based instrument, not healthcare specific, but employed extensively in health professions education assessment. It provides metrics of the learner's preferred moral argument (personal interest, maintaining norms, post-conventional). The procedure is most informative when conducted twice—before and after the educational intervention. The score differences are calculated to assess individual and group change.
5. Professional Identity Essay (PIE):[151] Learners are invited to write essays on their identity development, using specific prompts. These PIEs are scored by a developmental educational psychologist with expertise in measurement of moral capacities in professional education based on a validated rubric.
6. REFLECT:[152] The Reflection Evaluation for Learners' Enhanced Competencies Tool is a formative assessment tool consisting of four reflective capacity levels ranging from habitual action to critical reflection with focused criteria for each level described in the REFLECT rubric. The rubric also evaluates transformative learning and reflection or confirmatory learning.

The most frequently used educational experiences evaluation is inviting learners to rate their satisfaction.[80] A more elaborate approach is providing a before-after self-assessment surveys of the perceived experience impact.[81] In this format, the learning objectives are frequently used for the survey entries. Both approaches are relatively easy to design, administer and analyse. However, the classical assessment paradigm, abridged as KASB: knowledge, attitudes, skills and behaviours, requires additional modalities.[82] Here is a closer look at potential assessment tools in education on medicine, Nazism and the Holocaust:

Knowledge (see Panel 7S "knows") assessment is by written or computerized knowledge questions (multiple choice questions, short answer, matching, true/false). Essays may be used with either a rubric or key words for their standardization. Essays may also be used for demonstrating understanding, discussion, deliberation, and analysis (higher cognitive levels).[82] Some unpublished knowledge assessment instruments are available, but no yet psychometrically assessed.[83]

Skills/competencies assessment is evaluated with lists of milestones, skills, and competencies,[84 69] with some of them translated into observable entrustable professional activities. Formative Mini-CEX (i.e Clinical exercise examination, a validated checklist for assessing an observed clinical encounter)[85] or documenting observed clinical skills and mini-PAT (a validated checklist for evaluating professionalism in a clinical encounter)[86] for evaluating observed professionalism have been developed and are mostly in formative use, the Mini-CEX extensively and the Mini-PAT less so. However, no such milestone list has been described either for ethics or for medicine, Nazism, and the Holocaust teaching.

Attitudes, values, professional identity formation, professionalism can be assessed by means of a variety of scales.[85,86] However, a systematic review[74] "identified a paucity of psychometric evidence for the identified professional identity measures. None of the measures had the full range of psychometric evidence, as recommended in the COSMIN (a widely accepted checklist of quality indicators for an evaluation instrument) checklist."[74, also 87,88,89] The same was reported about the other constructs evaluation instruments, thus limiting their summative use.

Moral development can be assessed by the four components model of morality and associated measures for each, as applied in remediation.[90] Various instruments span multiple additional constructs and were, just as pedagogies, usually constructed for ethics or identify formation teaching.[90] However, their summative testing application is limited by issues either of psychometric properties or by lack of health care specificity. Examples include: values sensitivity in medicine,[91] clarity of professional identity,[92] Professional Identity Five Factor Scale and Tagawa's developing scale (DS).[93]

Overall, state of the art best practices for assessment are: learners surveys,[80] knowledge and attitudes questionnaires, [82,83] use of mini-Clinical Exercise Examination[85] and/or mini-Professionalism Exercise Examination[86] (medicine specific and validated for formative purposes) through observations in clin-

ical settings or simulation (for professionalism evaluation) and the combination of Defined Issue Test 2 (not medicine specific but validated) for moral sensitivity development,[94] Professional Identity Essays (medicine specific and validated),[95] and reflective writings (medicine specific and validated) for reflective competence development.[44,45,78] Recent studies in medical and nursing education have utilized surveys,[23] qualitative thematic analysis of reflective writings[21,26] and mixed methods assessment[21] to reveal educational impact. Recommended next steps in assessment include follow up for impact sustainability, assessment of more extensive interventions, triangulation of psychometrically sound validated instruments with qualitative data, and documentation of change in knowledge and attitudes and their correlation with informative, formative, and transformative learning. Efforts to further test and validate assessment tools for medicine, Nazism, and the Holocaust instruction are on-going, and this Commission's key recommendation is further research on finding the best assessment approaches and tools.

Expanding a curriculum

The core content of most curricula on medicine, Nazism, and the Holocaust tends to be similar, focusing on key historical facts and providing opportunities for reflection on implications of this history for today and the future. This is a complex history that challenges both educators and learners. Therefore, a practical application is for the teacher to plan a gradual increase in time allocation (from one hour to a semester long course, see Panel 6S) tailored to the intended audience, audience size (small to large group), chosen pedagogies (from lecture to site visits, using medical humanities, and more), local relevance, and level of familiarity with medicine, Nazism, and the Holocaust (Panel 6S).

Panel 9S: Stepping-up: Examples of educational interventions (from one hour to an entire programme) by time allocation, supported by Supplement C: Curricular examples

1. **One to two hours:** This is typically what teaching institutions allocate for an introductory class, or one that is related to a commemoration event (i.e., Holocaust Remembrance Day). Examples

A. **75-minute webinar offered online** in a local, national and/or international context, with optional follow-up local reflective activities supported by a package of materials and a suggested syllabus. (Panel 3S.B USA; offered to multiple health professionals in various stages of the professional life cycle, North American based, globally open)

B. An invitational one- to three-hour presentation for an existing larger educational module (continued medical education, relevant existing curriculum at a medical school, a faculty retreat or faculty development event etc. (C1-3, C18 USA, Spain, Israel)

2. **Two- to four-hour event: may combine a didactic session, a testimony and a memorial service (if on a Holocaust Memorial Day) or just a didactic session.** (C4: A 2-hour faculty development activity, USA, C5. half a day processing of 2.II, USA, C17, 3-hour module, USA. C18, two hours, Canada)

3. **A full day** with an opening talk, a relevant (probably recorded) testimony and rotating through 2-4 small group activities that combine learning and processing with a final get-together for wrapping up and feedback. Preparatory materials and assignments may be included to prepare learners for an optimal outcome. (May be held in a relevant museum, C.13, Israel)

4. **A 2- to 5-day training:** a hybrid format of three days face-to-face and two online activities may be an effective choice. The face-to-face days can be comprised of relevant lectures, panel discussions or testimonies, with small group activities taking at least half of the time and on-line days flipping the classroom to allow individual and small group learning and processing from home through web-based learning. No such modules have been identified for medicine, Nazism, and the Holocaust; examples of ethics and end of life courses that use this format and include a session on medicine, Nazism, and the Holocaust exist.

5. **A semester-long course** (typically 24 academic hours), elective or required, weekly or bi-weekly sessions in large or small groups with homework or hybrid pedagogy and possibly a MOOC format (with all or most of the syllabus delivered online) are successful formats (C6-9, C16, USA, Israel)

7. **A longitudinal theme**, spanning, for example, an entire medical or nursing school curriculum, a residency programme, or any lengthy training, may be the pedagogically most effective approach. Aligning medicine, Nazism, and Holocaust content with existing curricular components addresses integration and drives the message that questions in medical ethics and practice may be informed by this learning. For example, in a six-year medical school, 2 half days a year represent 12 sessions over six years that feature a range of topics. Such a full example is not available yet. (C.10-11, Germany)

8. **Educational study-trips:** C12 A virtual visit to the memorial and information site for the victims of National Socialism (Germany); C14: Study trip to Poland (USA) C15: Educational study-trips to memorial sites (Spain)

Organizing educational modules

For the informative level, the parts 1 and 2 of this report on historical evidence, and 3 and 4, with implications, supply case studies containing up-to-date results of historical research, carefully illustrating relevance of this domain for the present and future. Additional case studies are presented in the Supplement B. The creation of new educational modules based on this report may start by following the example mapped out in Panel 2S. At the informative level the aim is to proceed "from fact memorization to searching, analysis, and synthesis of information for decision making."[2] Thus, learning outcomes that use the verbs list, identify, describe, differentiate, construct, compare and contrast, develop, explain, compose, analyse, review and critique, formulate, organize, investigate and challenge will fulfil this goal.[33] Content areas and case studies can be chosen from the respective report chapters. Pedagogies from lecture to online with different learner engagement strategies may follow with learning assignments such as 'submit an analysis,' 'compare and contrast,' and 'analyse the options and choices in the case, how they may have informed decision making, what happened in reality and why' are complementary to the overall pedagogy.[33] The aim of the informative level is to produce experts equipped with knowledge, analytic skills, and decision-making proficiency. Thus, application of the learning on the informative level can manifest in enhancement of ethical sensitivity, deliberation and decision making, both in patient care, public health, and research; all competencies expected in scholars and health care professionals.

When the formative level is intended, proceeding "from seeking professional credentials to achieving core competencies for effective teamwork in health systems"[2] follows. Learning outcomes here aim at professional identity formation, incorporation of values (while remaining critically reflective about them) that will be embodied in corresponding mindsets and inform behaviours. Appropriate learning outcomes are formulated with the terms: reflect upon, describe impact on identity, analyse team coordination, roles and mechanisms, and

questioning the values underlying actions.[78] Appropriate pedagogies are experiential and interactive; they require critical self-reflection (Balint,[96] healer's art[97]) and perspective taking as a key formative reflection.

For the transformative level, the ability to progress "from non-critical adoption of educational models to creative adaptation of global resources to address local priorities"[2] is described. Based on the acquired information, skills, behaviours and their emerging identity, learners are invited to become "enlightened change agents."[2] Verbs and reflective questions and instructions that belong here are: Assess how your context may be enhanced and how? What skill set is needed to accomplish this change? Critically reflect and apply complexity thinking.[33] Pedagogies revolve around field work, experimenting with planning, and implementing change, while being reflective about one's transformation and within the context. This is an objective that requires yet another set of competencies that to a certain extent transcend current competency frameworks (i.e., critical reflection,[98] systems analysis,[99] change science skills[100]) to pursue and achieve their ultimate goal. Manager and communicator competencies apply here.

Further work on the assessment of the impact of medicine, Nazism, and Holocaust instruction that integrates the contributions of best evidence-based history, tested pedagogies (which may be innovative) and valid and reliable measurements, including qualitative methods, is needed and is currently emerging.

Supplement B: Additional historical background

This section offers supplementary material to the history sections of the report. Panels include information on some of the key events in the general history of Nazi Germany and specific policies that affected medicine and health care professionals. Further, there are additional examples of perpetrators, victims, and survivors of Nazi Germany and the Holocaust that can be used to teach medicine, Nazism, and the Holocaust.

Introduction

Panel 10S: From the Weimar Republic to the Nazi dictatorship (timeline 1932 to 1934)[101-103]

1932

November 6: *Reichstag* (Parliament) Election
- Nazi Party received 33.1% of the vote, largest percentage of all political parties.

1933

January 28: Resignation of German Chancellor Kurt von Schleicher
- Due to failure to form coalition government

January 30: **Hitler appointed chancellor** by President Paul von Hindenburg
- Right-wing coalition between Nazis and German Nationalists

February 27: Arson attack on Reichstag

February 28: Reichstag Fire Decree (officially known as the Decree for the Protection of People and the State) issued by Hindenburg
- Gave Hitler emergency powers and suspended many civil liberties
- Mass arrests of Communists followed immediately
- Paved way for Nazi takeover of federal state governments and the elimination of all other political parties

March 5: Reichstag Election
- Nazi Party received 43.9% of vote, due in part to parliamentary suppression of Nazi political opponents, especially Communists

March 22: **Dachau concentration camp** established
- Extra-judicial internment site for Communists and Socialists

March 23: Parliament passed the **Enabling Act** (officially known as the Law for the Removal of the Distress of People and *Reich*)
- Gave Hitler power to rule by decree and to create a single-party state
- Substantially altered Weimar Constitution but did not repeal it
- Rendered *Reichstag* powerless but did not eliminate it

April 1: **Boycott against Jewish businesses** and medical and legal practices

April 7: **Law for the Restoration of the Professional Civil Service**
- Removed Jews and the "politically unreliable" from civil service positions (incl. university professors and government medical officials)
- Impact reduced by "Hindenburg exemptions," which enabled World War I veterans, individuals who lost a father or son in the war, and those who entered the civil service before 1914 to appeal their dismissal

May 10: Organized book burnings in university towns across Germany
- Books written by Jews (e.g., Albert Einstein and Sigmund Freud) and books on subjects or in styles deemed to be "un-German" (e.g., Marxist and pacifist) were burned in massive pyres, including over 20,000 books burned in Berlin's Opernplatz

July 14: **Law for the Prevention of Hereditarily Diseased Offspring, a.k.a. Sterilization Law**
- Mandated sterilization of people determined by a Hereditary Health Court to have one of nine specified "hereditary" conditions
- Went into effect in January 1934 and led to the forced sterilization of 310,000 to 350,000 individuals

September 13: 'Racial Science' is made compulsory at German schools

December 1: Law to Safeguard the Unity of Nazi Party and State
- Declared that Germany and the Nazi Party are one
- Reality more nuanced due to multiple beliefs, interests, and priorities within the Nazi Party and other government entities

1934

June 30: "Night of the Long Knives"
- Arrest and subsequent execution of leadership of the Nazi Party's Stormtroopers (SA), as well as other former rivals of Hitler
- Paved the way for the German Army to support Hitler and for the independence and growth of the SS

August 2: Death of President von Hindenburg
Consolidation of roles of chancellor and president into single position of Führer and Reich Chancellor, which Hitler occupied
- Made **Hitler the sole leader of Germany**

Persecution of physicians

Panel 11S: Key national legislation and events impacting Jewish and 'politically unreliable' doctors and academics[104-109]

April 1, 1933: Nationwide **boycott of Jewish businesses**, products, doctors, and lawyers

April 7, 1933: Law for the **Restoration of the Professional Civil Service**
- removed Jewish and 'politically unreliable' doctors from government health posts and university positions
- 'Hindenburg Exemptions' for those who had worked in civil service before 1 August 1914, who had fought at the front in World War I, or who had lost a father or son in World War I

April 22, 1933: Decree Regarding Physicians' Services with the National Health Service
- annulled contracts between panel insurance funds and Jewish and 'communist' doctors, leaving them with only patients who had supplementary health insurance schemes or were able to pay out of pocket

December 13, 1934: Decree Regarding *Habilitation* (qualification for university teaching; *Reichshabilitationsordnung*)
- Provided legal basis for excluding Jews and political dissidents from academia

January 21, 1935: Law on the Retirement and Transfer of Professors as a Result of the Reorganization of the German System of Higher Education
- forced many Jewish and politically dissident academics into retirement

September 15, 1935: **Nuremberg Race Laws:** Reich Citizenship Law and Law for the Protection of German Blood and German Honour
- in stripping Jews of their German citizenship, the Reich Citizenship Law eliminated the possibility for Jewish doctors to receive reimbursement from mandatory health care insurance funds

November 14, 1935: First Implementation Ordinance to the Reich Citizenship Law
- Set legal definition of 'Jew' and 'Jew of mixed race' and thus determined to whom subsequent anti-Jewish legislation would apply

December 13, 1935: Reich Physicians Ordinance
- prohibited doctors identified as Jews from receiving medical licenses

January 1, 1938: Expiration of Jewish doctors' permits to practice for supplementary health insurance schemes
- Jewish doctors were left with only patients who were able to pay out of pocket

July 25, 1938: Fourth Implementation Ordinance to the Reich Citizenship Law (a.k.a. the *Krankenbehandler* Decree; literally: "treater of the sick")
- revoked the medical licenses of all 3,300 Jewish physicians remaining in Germany
- only 709 of them were granted the title of Krankenbehandler, which enabled them to continue medical work but only for Jews

November 9–10, 1938: **November Pogrom**, or *Kristallnacht*
- the first occasion of widespread, targeted destruction of Jewish property, especially synagogues, homes, and stores
- subsequent deportation of Jewish males (approximately 30,000 in total) to concentration camps because they were Jews

February 17, 1939: New *Reichshabilitationsordnung* (decree on licence to teach at university)
- additional political dismissals

Panel 12S: Leo Gross MD, 1887–1941, persecuted and murdered[110]

Stolperstein memorial, donated by Dr. Leo Gross nephew, Dr. Wolff Gross
https://commons.wikimedia.org/wiki/File:Stolperstein_Martin-Luther-Str_65_(Sch%C3%B6n)_Leo_Gross.jpg
licenced under creative commons

Leo Lewin Gross MD practiced medicine in Kolberg in the Prussian province of Pomerania on the Baltic Sea, today's Kołobrzeg in Poland. He married Helene Walter, and their daughter Ursula was born on August 6, 1914, only days after the start of WWI, in which Leo did military service as a volunteer. From 1928 to 1937 he was the attending physician at a local Jewish Spa Hospital that cared for impoverished children from Berlin. His practice thrived and the family was well respected in the city, despite rising overt antisemitism in the spa town. And while after 1933 "Aryan" patients were discouraged from visiting their Jewish doctors, Leo had many loyal patients. However, the enactment of the Nuremberg Race Laws in September 1935 prompted him to explore emigration options. He visited Mandatory Palestine but returned to Germany with the impression that the climate there would be harmful to his daughter, a dental student who had developed tuberculosis and needed hospital care. He was taken prisoner during the 1938 November Pogrom and deported to Sachsenhausen concentration camp. Several weeks later he was released under the condition that he would emigrate. Despite his desperate search for an emigration route, his efforts went without success. In March 1941 he moved with his wife to Berlin to work as an orderly in the Jewish Hospital. It was the only position open to him, as the *Krankenbehandler* Decree had revoked his medical licence, robbing him and all other Jewish physicians in Germany of the right to practice medicine. The systematic deportation of Jews from Berlin to "the East" began on 18 October 1941, with trains bound for Łódź (Litzmannstadt), Minsk, Kovno and Riga. On 17 November

1941 a train left Berlin, carrying Leo, and presumably Helene, among its 1,006 passengers. On arrival in Kovno, all of them were marched to Fort IX, a part of Kovno fortress, and executed. There is no definitive documentation of Leo's and Helene's deaths. Meanwhile, their daughter Ursula had been staying at a Nordrach Hospital in the Black Forrest, the *M.A. von Rothschild'sche Lungenheilstätte*, a religious Jewish facility for the philanthropic care of the sick. Ursula and all remaining patients were deported from there on 29 September 1942. Carrying approximately 900 people, their train departed from Karlsruhe and travelled via Darmstadt towards the Eastern regions of the *Reich*. The destination of Ursula's train as well as her fate remain unknown.

Panel 13S: Sven Oftedal MD (1905–1948), prisoner-physician in concentration camp[111]

Born in 1905 in Stavanger, Norway, Sven Oftedal studied medicine in Oslo and later established a general practice in his native city. After the occupation of Norway by the Germans, Oftedal, a non-Jewish social democrat, was active in the resistance. Arrested by the Gestapo, he was deported to Sachsenhausen concentration camp in February 1943, where he played a significant role as an inmate doctor at the infirmary. According to accounts by former fellow inmates, he procured painkillers and nutritional fortifiers for his patients by persuading the Scandinavian inmates, who regularly received Red Cross parcels, to give him the pills and cod liver oil that they were sent. Together with another Norwegian inmate doctor, Oftedal additionally set up and managed a blood donation system in the camp, in which some 100 inmates took part. Most of these were Norwegians, who were favoured as donors by Oftedal, due to their relatively good nutritional levels. Inmates of many other nationalities also donated blood, including Poles and Germans. The blood was needed for prisoners who had been wounded in Allied bombings of the armaments work site near the concentration camp.

Photo: Dr. Sven Oftedal, after 1945 (DB 2118), Gedenkstätte und Museum Sachsenhausen / Sachsenhausen Memorial and Museum.

Panel 14S: Stanisław Świtał MD (1900–1982), rescuer of the persecuted[112]

Yad Vashem, the World Holocaust Memorial Center in Jerusalem, recognizes as "Righteous among the Nations" persons who showed courage, compassion and high moral standards in the face of adversity and who rescued Jews in Nazi Germany and under Nazi occupation. When Polish resistance fighters finally surrendered to the Germans in Warsaw, a group of Jewish fighters hid in a bunker on Promyka Street. They stayed there for seven weeks, until mid-November 1944, when the Germans stormed the cellars in the area. One of the fighters went to Dr. Stanisław Świtał, director of a hospital in the Bernerowa area, and asked him to help save his comrades. Świtał sent members of his staff to that cellar, telling the Germans that they were following orders from a German officer to evacuate typhus patients. Among those saved by this action were Yitzhak ("Antek") Zuckerman, Zivia Lubetkin, Zygmunt Wakhman, Tuwia Borzykowski, Marek Edelman and Julian Fiszgrund. When they came out of the cellars, some of them carried on stretchers, they were hospitalized in Bernerowa and thus saved. On another occasion, Dr. Stanisław Świtał rescued a Jewish couple in the same way.

Panel 15S: Context of female doctors' experiences in Nazi Germany
[much of this text relies on the work of Anna von Villiez,[113]]

The numbers of Jewish female physicians had been growing since the opening of German universities for women in 1900. They often came from the socially upwardly mobile Jewish middle class, where education was seen as key to social integration and advancement.

Many of the female doctors affected by Nazi government policies were among the first generation of female academics, and they had already encountered efforts to push women out of employment before 1933, with the Double Wage-Earner Law (1932) that emerged from the economic depression. [113]

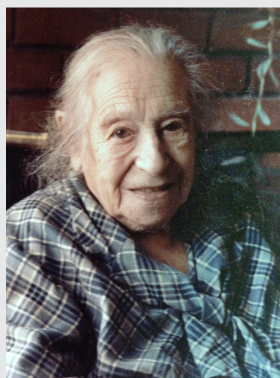
Jewish women were well represented among the first women to enter the medical profession during the period of the Empire until WWI. Some estimates suggest that they represented between 17 and 40 percent of all female physicians at the time.[114,115] Towards the end of the Weimar Republic, approximately 3400 women worked as physicians in Germany, making up 7% of the medical profession.[116] Persecution of female Jewish physicians from 1933 to 1945 was devastating, as between 600 and 900 Jewish female physicians were impacted by Nazi laws prohibiting Jewish physicians from practicing medicine.[108,117]

While the antisemitic propaganda against physicians focused on male doctors, the professional restrictions generally hit female doctors harder. Unlike their male counterparts who had fought for Germany in World War I and had begun practicing medicine well before 1914, Jewish female physicians did not qualify for these "Hindenburg exemptions" to the Civil Service Law of 1933 [see panel 11S]. Furthermore, they tended to be younger and less well established than their male colleagues and could not draw on many private patients after they had lost their permit for the panel health insurance system. They were part of an overall trend of increasing unemployment among female physicians in the early years of the Nazi regime, as the rate rose from 4.3 percent in 1932 to 17 percent in 1937.[109]

The specific experience of female doctors as immigrants is also worth noting. While some had built extraordinary medical careers in exile, many others had to revert to more

traditional gender roles. For … hard-
er time requalifying to prac… Nazi
persecution. This was especi… wife
were both physicians. While … the wives often had to work odd jobs to provide income and care for household and children.[113] Dr. Käthe Beutler's experience demonstrates the challenges female doctors faced, even those who obtained a medical license in their new home country.

**Panel 16S: Käthe Beutler M…
(1896–1999), persecuted an…**



…20, photo: family estate
…990, photo by Fred Beutler

… in Berlin in 1896, the year when …e granted for the first time to girls …hers in 1917 and started her medi- …drich-Wilhelms-Universität in 1918, only half a generation after the first woman was allowed to receive a medical license in Germany, in 1901. At the time of her studies, Käthe was one of 251 women among 2560 medical students, and Jewish women made up a third of female medical students. In January 1923 she successfully defended her doctoral thesis and received her medical degree in 1924. During her internship, she trained with several internationally renowned paediatricians and published a scientific paper, before marrying the internist Alfred Beutler in 1925. While she oversaw the household and bore and raised three children between 1926 and 1932, Käthe established a private practice under her maiden name in the same house in which Alfred had his own. At the time, 722 of the 6785 physicians in Berlin were women, and 270 of these were Jewish. Käthe received her panel insurance licence in 1933, but lost it only a few months later due to new antisemitic Nazi legislation. In 1935, following Käthe's insistence on emigration, Alfred travelled first to Palestine and then to the US, where he was able to remain in Wisconsin due to an affidavit by relatives. Käthe and the children followed in early 1936. Both of them opened new practices after successfully passing licensing exams. However, Käthe's practice was never very active, most likely because after emigration she had to care for the household and children without any help. Throughout her life she maintained her high expectations for her children and grandchildren regarding academic success and musical facility. All of her children had academic careers, and grandson Bruce Beutler received the Nobel Prize in medicine in 2011.

Panel 17S: Holocaust-Survivor Physicians[119,120]

Saving a life is the supreme value in Jewish tradition—a religious commandment incumbent on every individual. Therefore, Jewish society has always held physicians and medicine in high esteem, and even great rabbis, through the generations, have studied and worked in the medical profession. During the interwar period, thousands of Jews filled the faculties of medicine and had a large representation among physicians in Europe, far above their percentage of the population. On the Nazis' rise to power in 1933 and following anti-Jewish policy, especially after the enactment of the Nuremberg Laws in September 1935, Jewish physicians began to leave Germany, mainly to Mandatory Palestine and the United States. In October–November 1935, approximately 500 physicians immigrated to Mandatory Palestine from Germany, boosting the number of physicians there from 1,500 in 1934 to 2,202 in 1936. At that time, under the British Mandate for Palestine, the Jewish community numbered fewer than 300,000 and had the world's highest ratio of physicians to residents: one physician to 174 people. At the end of 1944, there were 2,247 physicians licensed to practice by the British Mandate in Mandatory Palestine. The Jewish physicians who immigrated from Germany during the 1930s were an influential factor in the creation of the medical system in their new home country.

The fate of the Jewish physicians in Europe was no different from the rest of Europe's Jews. Most of them were murdered during the Holocaust. Between the end of World War II and the end of 1947, 233 Holocaust-survivor physicians immigrated to Mandatory Palestine. Starting with the establishment of the State of Israel in May 1948 through the mass immigration until 1952, another 1,340 physicians immigrated, 80% of them Holocaust survivors. In 1952, the Holocaust-survivor physicians constituted one third of all doctors in the newly created State of Israel. By the end of this mass immigration period in 1952, the number of Jewish residents of Israel had increased from approximately 671,000 in 1948 to approximately 1,429,800.

Engaging in the medical profession after the Holocaust demanded inner strength. Many of the physicians had witnessed medical crimes committed by the Nazi doctors during the war and a few of them, under threat of their lives, had been forced to assist with these crimes. Physicians working in oppressed areas under the Nazi regime had to cope with ethical issues resulting from the appalling conditions imposed on the Jews by the Germans. At the end of the war, while still carrying diseases contracted during the Holocaust and dealing with loneliness after losing family members, many physicians were prepared to establish medical systems for fellow Holocaust survivors in the displaced persons camps in Germany. Some had had their medical studies cut short during the Holocaust and summoned the strength to continue and complete their studies. Among them were those who considered this a personal victory over the Nazis. Many of the survivor physicians wished to live among Jews and to work as doctors in their own country. The Jewish physicians who immigrated to Mandatory Palestine from Germany during the 1930s were an influential change factor. They helped to found new medical institutions and integrated into existing ones while contributing their experience from central Europe to establish the medical system.

The Holocaust-survivor physicians arrived in Israel, where they found a society that had doubled its population with the post-war migration waves, a society in which large numbers of immigrants suffered from illnesses and severe trauma. The problem of health was dominant. The fledgling State of Israel took responsibility for treating the many immigrants with illnesses and disabilities, those wounded in the War of 1948,

patients with tuberculosis, psychiatric illnesses, infectious diseases contracted during migration, and morbidity resulting from difficult, temporary living conditions. The state had to set up preventive medicine services and to create a nationwide health care system in the new State. The Holocaust-survivor physicians contributed on all these fronts, which made up one third of the physicians in the State of Israel, especially in the care of the many new immigrants. While shouldering the burden of recovery and rehabilitation of other immigrants, they had to adapt to their new way of living, too, which was not made easier for some of them by an advanced age. They had to cope with language difficulties due to lack of knowledge of Hebrew, with the challenging weather conditions, the low standard of living in the early years of the state, the loss of 10 years' experience during the war and subsequent wanderings. Many of them eventually became senior directors and leaders of medical institutions.

These physicians were also among the pioneers of research on the history of medicine during the Holocaust, both criminal Nazi medicine and the medical activity to which Jewish physicians devoted themselves under the tragic conditions in the ghettos and camps. They wrote documentation during the Holocaust itself and, immediately afterwards, published research in medical journals and on other scholarly platforms. One prominent Holocaust-survivor physician who led the study of the Holocaust and of medicine during the Holocaust was Dr. Mark Meir Dworzecki, a survivor of the Vilna ghetto and of many camps. In 1952, for example, the Second World Congress of Jewish Physicians convened in Jerusalem. A session held in the presence of the Prime Minister and other dignitaries was devoted to Jewish medical resistance during the Holocaust and to the Nazis' medical crimes. The Congress received wide coverage in the daily press. After the event, the prohibitory injunctions agreed upon at the Congress regarding experiments on humans were disseminated to medical institutions. Responses were weak, however. The Holocaust-survivor physicians had discussed these ethical insights directly after the war, but the medical world was not yet ready to hear them.

The terrors of the Holocaust were, however, continually at the forefront of the minds of Holocaust-survivor physicians. Various testimonies reveal how, at different junctures in their work, with diverse ethnic and multicultural populations, the values of humanistic medicine served as guiding principles, both despite and as an answer to the humiliations that they had experienced as a persecuted minority. The story of the activity of the Jewish physicians after the Holocaust is a continuation of their activity in the ghettos and camps as well as of their interwar experiences. Even after the inferno, they made every effort to contribute to the medical system. These physicians left behind important writings, including biographies, in both general and family archives, which are awaiting further research. A scientific exploration of these archival documents could provide important insights into the historical evidence of these physicians' biographies and ethical reasoning.

'Euthanasia' – the Nazi patient murders

Panel 18S: Euthanasia debates before 1939

The Greek word *euthanasia* literally means "good death." In the early modern era, "euthanasia medica" referred to the medical assistance to allow for a natural, easy, and gentle dying without any abbreviation of life. However, even before 1800 CE there existed a popular practice of ending life early and a demand for it in some utopic writings.[121,122] The meaning of the term euthanasia changed in the late 19th century, denoting physicians delivering terminally ill people from their suffering by ending the patients' lives. One of the first to link the term euthanasia to active killing was the British writer Samuel D. Williams (1870). This led to a debate about "mercy killing", which extended to people with mental illnesses. There was also a debate in the US in the early 20th century, especially about the killing of new-born disabled children based on eugenic arguments. In the 1930s, euthanasia societies were formed in Great Britain and the US, but they did not succeed in their efforts of having active euthanasia legalized.[123-127]

In Germany, the demand for life-shortening euthanasia by physicians was preceded by a legal debate in connection with the decriminalization of suicide during the 18th and 19th century. After 1871, assisted suicide was no longer considered a criminal offence. Killing on demand, on the other hand, remained punishable, but more leniently so than murder. The debate about killing on demand, assisted suicide, and medical shortening of life began in the second half of the 19th century, with philosophy student Adolf Jost's call for the legalization of a "right to die" in 1895. He argued with compassion for the seriously ill and a presumed lack of benefits their lives offered to the individual and to society, including the "incurably mentally ill." After the First World War and the experience of mass suffering and dying, the debate was taken up once again by the lawyer Karl Binding and psychiatrist Alfred Hoche, who called for the de-criminalization of the "annihilation of life unworthy of living," and went further by arguing for the killing of persons with mental illnesses and physical and cognitive disabilities. In their state of so-called "mental death," as formulated by the authors, the patients were attributed neither the will to live nor the will to die. They were overtly referred to as 'ballast lives' (*Ballastexistenzen*), whose fate should be decided by experts. In the Weimar Republic, Binding and Hoche's work was widely discussed, especially by doctors and lawyers, but met with a divided response.[128-132]

Panel 19S: Helmut Dey (1931–1943), victim of the Nazi 'euthanasia' patient murder programme

Helmut Dey, born 5 July 1931, was admitted to the Youth Psychiatry Clinic at Loben, Silesia, on 5 April 1943 on request of the Provincial Youth Welfare Office (*Landesjugendamt*). The official documents give only a glimpse into his family circumstances: the boy came from an impoverished social background with a family history of alcoholism, violence, and non-marital sexual relations; his mother was unmarried and suffered from mental and physical disabilities. Helmut was described by his teachers as quarrelsome, restless, and constantly disturbing school lessons and had been cited for truancy, begging, and theft. His patient file includes a note accusing him of attempting to initiate an indecent relationship with his younger half-sister, born in 1932. When a harsh regimen introduced by his stepfather to discipline the boy failed, Helmut was placed in a children's home in 1938. Subsequently, he was repeatedly transferred between various care and correctional institutions within the youth welfare system. Helmut was characterized as 'depraved or neglected' (the German term *verwahrlost* holds both connotations), and in 1943 the Youth Welfare Office requested for psychiatric experts to assess the educability and social adjustment of the boy in order to decide

about further institutional care. (State Archive in Katowice, 763 Jugendpsychiatrische Klinik Loben, sign. 41, pp. 22-29)

The criteria of this assessment were not medical ones. Remarks on disobedience, sexuality, educability, and social usefulness prevail in the psychiatric medical assessments at the time. The case history of Helmut Dej illustrates how the language of medical expertise served to stigmatise, with pervasive formulations of moral judgment rather than psychiatric diagnosis.

Dr Hecker's first evaluation reads: "The boy is a bed-wetter. His speech is articulated, he can build sentences. He can dress and undress without help. He is frequently disobedient, cheeky, noisy and restless. He plots only how to fool about. At practical work hard-working and persistent. He can eat without help, but he does it hastily. He gets along with other children quite well, plays gladly with them, keeps them busy with his jokes and is very glad when they are laughing at him. During the mock lesson he is attentive. He can correctly show his eyes, nose, mouth, ears, hands and feet. He can distinguish and name colours, shapes and measurements. He is familiar with everyday objects of use and knows what they are used for. He can tell left from right. He can correctly assemble cut-out paper-shapes. He can read quite well, however, writes with spelling mistakes. He can count up to 100, write numbers up to 500 and count backwards from 20. He can enumerate months, weekdays and seasons of the year in order. He knows his ABCs. He is familiar with denominations and can add up money, but he is not able to do shopping because he cannot calculate change. He cannot add up larger sums, only up to 10 RM [*Reichsmark*]." (Bundesarchiv Berlin R 96 I Anhang (Reichsarbeitsgemeinschaft für Heil- und Pflegeanstalten, Bd. 6, the files not numbered), p. 33, translation from the original German)

A sample of Helmut's intelligence test:
"The boy knows the time and date, is able to repeat five numbers one after the other.

When and where Führer was born?
In Braunau am Inn 20. April 1899

What is the difference between:
stairs and ladder?
The stairs are made of stone and ladder of wood.
bones and meat?
The bones are hard, the meat is soft.

Sentence Structure: soldier-war-homeland
A soldier fights for homeland.

What does *trust* mean?
I trust my mum.
What does *thankfulness* mean?
When one gets something, one thanks.
What does *honesty* mean?
When one tells the truth.
What does *envy* mean?
When one is envious.
What does *compassion* mean?
When one has something and he gives

He cannot tell a fairy tale.

8 May 1943
"The boy is constantly restless, distracted, not able to follow through with anything up to an end. Peaceful approach towards other kids. According to what he says, in Beuthen he used to stroll the streets and beg a lot, admits easily that he would spend the money for cinema. Demonstrates no sense of distance or feeling for the situation. He is running from bed to bed, stirring up the younger children." (Bundesarchiv Berlin R 96 I Anhang (Reichsarbeitsgemeinschaft für Heil- und Pflegeanstalten, Bd. 6, the files not numbered), p. 33, translation from the original German)

10 May 1943, Dr. Hecker informed the authorities:
"In the understanding of the Law to Prevent Hereditary Diseased Offspring the boy is feebleminded even though he demonstrates certain practical skills. Deciding [factor] in the context of further education is his constant motoric restlessness and asocial character manifested by absent-mindedness, lying, stealing, sexual excitement, and general ineducability. Since these character traits are closely linked to feeblemindedness, in this case significant and fundamental progress in social adjustment is impossible. On the contrary, it can be assumed that the boy will get worse. […] From the medical point of view, he is unsuitable for youth welfare services. I recommend revocation of the latter. I will transfer the boy to the care station of the State Hospital and Nursing Home at Loben." (State Archive in Katowice, 763 Jugendpsychiatrische Klinik Loben, sign. 41, p. 12, translation from the original German)

On 11 May 1943 Helmut was transferred to the children's care station (*Kinderpflegestation*) where his life ended on 16 July 1943. While the documented cause of death was acute cardiac insufficiency (*akute Herzschwäche*), he very likely was among those who were murdered. Ten days after his death, a post-mortem examination was performed.

Panel 20S: Hanna Hellmann (1877– after June 15, 1942), victim of the Nazi 'euthanasia' patient murder programme

Photo: artwork by Johanna Hellmann, Prinzhorn Collection

Johanna (Hanna) Hellmann came from a Jewish family in Nuremberg. After studying German literature in Berlin, Heidelberg, Bern, and Zurich, she received her doctorate from the Faculty of Philosophy at the University of Zurich in 1909 with a thesis on the poetry of Heinrich von Kleist. Soon after, she lived in Frankfurt am Main, where she wrote for newspapers and taught as a lecturer at the women's seminar for social work founded in 1914. During the 1920s and 30s she developed personality changes and reported "visions." Following an antisemitically motivated denunciation in May 1938, Hanna Hellmann was arrested and forcibly committed to a psychiatric hospital in Frankfurt. In 1938, thanks to the efforts of her sister, Hanna Hellmann was sent to a private sanatorium near Freiburg/Breisgau. When Jewish patients were no longer allowed to be treated there, she was transferred to the *Jacoby'sche Heil- und Pflegeanstalt für Nerven- und Gemütskranke*, the private Jewish hospital in Bendorf-Sayn near Koblenz that became the only psychiatric hospital allowed to care for Jewish patients, on July 31, 1939. From there, Hanna Hellmann was deported together with other patients and Jewish staff to the Izbica transit ghetto in Poland on June 15, 1942.

Most likely, she was further deported to the extermination camp Sobibor on June 19, 1942 and murdered there immediately after arrival.

Hanna Hellmann communicated with the outside world, especially with her sister, with the help of drawings made during her hospitalizations, and some of her artwork has survived. She drew mainly expressive colourful floral motifs, which she captured with pastel chalk on greaseproof paper. Since 2016, around 1,800 of Hanna Hellmann's works are part of the Prinzhorn Collection at Heidelberg University Hospital.[133]

Panel 21S: Hermann Paul Nitsche MD (1876–1948), perpetrator of Nazi 'euthanasia' patient murders[134]

Paul Nitsche was a leading reform psychiatrist during the Weimar Republic and became one of the main perpetrators of patient murders in Nazi Germany. He was born in Colditz, Saxony, the son of the psychiatrist Herman Nitsche. After graduating in 1901, he worked first in Frankfurt, then with internationally renowned psychiatrist Emil Kraepelin at the University of Heidelberg, and in 1903 followed Kraepelin to Munich. In both University hospitals he worked with the prominent eugenicist and psychiatric geneticist Ernst Rüdin and became part of his network. Rüdin later became the president (*Führer*) of the psychiatric professional association under National Socialism. Nitsche had been active in psychiatric institutions of Saxony since 1907, and in 1914 he was recruited as director of the Leipzig-Dösen asylum. Here he advocated new forms of treatment that involved intensive physical and work therapy and the establishment of outpatient care. From 1927 he was psychiatric advisor to the government of Saxony, and from 1928 director of the Pirna-Sonnenstein asylum. Like many reform psychiatrists of his time, he was a proponent of eugenic measures and welcomed the "Law for the Prevention of Hereditarily Diseased Offspring." He even initiated the first sterilizations before the law came into force.

As early as 1936, Nitsche tested a meatless and low-fat "special diet" on patients unable to work. This starvation diet was later also introduced in other asylums in Saxony. Nitsche was involved in the central planning of patient killings ('euthanasia') from the end of 1939 on. In early 1940, he developed a new killing method using the barbiturate Luminal. Initially deputized as medical director of the central 'euthanasia' organisation, he became the service's chief consultant in 1940, and medical director in the fall of 1941. Nitsche's actions demonstrate the intertwining of healing and extermination particularly clearly. He was sentenced to death in 1947 and executed in 1948.

Panel 22S: Friedrich Berner MD (1904–1945), perpetrator of Nazi 'euthanasia' patient murders[135,136]

Friedrich Berner was born in Zwickau (Saxony), Germany. Upon graduating from Rostock University medical school in 1931, Berner trained as a radiologist at the Rostock University Hospital's radiology department. On May 1st, 1933, he joined the SA as senior troop leader and conducted chest X-ray studies to detect tuberculosis (TB) infections. In 1934 Berner transferred to the SS due to a physician shortage, working for the SS medical department under the leadership of the radiologist Dr. Hans Holfelder, the chairman of the radiology department at the University of Frankfurt, who later recruited Berner as his vice chairman. Berner's research focused on cell destruction by radiation. Holfelder was among those who held a special license based on the 1933 sterilization law that allowed him to perform forced sterilizations using X-ray and radium in his department. Given Berner's academic interest and seniority it is likely, but as of yet unconfirmed, that Berner participated in these sterilizations.

Berner continued to move up in the ranks of the SS medical division in 1938 and 1939, and was appointed as the deputy commander of the *Wehrmacht's Röntgensturmbann*. The *Röntgensturmbann* was a mobile X-ray platoon in Germany under the command of Holfelder, which conducted tuberculosis screening. Berner and Holfelder's academic and military experience converged in co-authoring the first "Atlas of the X-ray serial images of the chest" (Leipzig; Thieme, 1939), which was based on the evaluation of over 900,000 X-ray serial screen images. At the onset of the war, Berner was initially recruited as senior doctor in the *Wehrmacht* and appointed as a lead physician of T4 at Hadamar between May 15, 1941 and December 31, 1941. Berner directed Hadamar under the pseudonym Dr. Barth, along with his colleague Dr. Hans Bodo Gorgaß, with military discipline, and at one point held a macabre anniversary "celebration" to mark the 10,000th murder of a patient; the entire staff was expected to be present for a gala dinner. According to some reports Berner was also involved in the 14f13 campaign selecting sick prisoners at the Buchenwald camp to be killed. Details about Berner's life after his time in Hadamar are sparse, though he did return to teach at the Frankfurt University Radiology Institute in 1944 and continued serving in the Wehrmacht's *Röntgensturmbann*. He is recorded to have fallen in battle on March 2, 1945, in Wronki, occupied Poland.

Examples of medical science in Nazi Germany and beyond

Panel 23S: Hermann Stieve MD (1886–1952) and the bodies of women executed by the Nazis[137, 138,139]

Anatomist Hermann Stieve (1886–1952) studied questions of reproduction and fertility and was recruited as youngest chair of a German medical department to the anatomical institute at Halle University in 1921. Apart from investigating surgical specimens for his research, he also used the traditionally available legal source of bodies of executed persons, for the first time in a 1919. By the early 1920s he realized that the situation of prisoners on death row essentially mirrored his animal experiments for the study of the influence of stress on reproductive organs and began studies on the bodies of executed men. Similar studies on women were impossible then, as they were not subject to executions in the Weimar Republic.

By the time of his recruitment in 1935 to the possibly most prestigious position in anatomy, the chair of the anatomical institute of the Friedrich-Wilhelms-University Berlin, Stieve had published more than one hundred scientific papers. Berlin was the political center of Germany, and this included the center of Nazi legislation, the *Volksgerichtshof* (people's court), where most of the prominent political trials were held. Death sentences increased exponentially during the Nazi period, and in Berlin they were performed at the Plötzensee execu-

tion site or in Brandenburg-Görden. Under the Nazis women were among the executed, and Stieve seized this 'opportunity' immediately to continue his studies on the influence of stress on reproductive organs, now in the female human "system" with ovulations patterns as one of his major interest.

As elsewhere in Germany and German-annexed territories, the collaboration between prison authorities and anatomical institutes was a close one. The bodies of executed persons and other victims of the Nazi system were used for the dissection course as well as for Stieve's research. Students and staff were sworn to secrecy; however, the provenance of the bodies was obvious due to the decapitations. Many of the victims were members of the political resistance or persons who had committed minor crimes. Stieve performed and published several studies based on "material" from hundreds of bodies of executed men and women during this time. He felt it to be his "duty" to store and use this "material of a kind that no other institute in the world can call its own." Stieve was a fervent conservative nationalist who never joined the Nazi Party NSDAP, and thus he was able to stay in his academic position after the war. In 1946, on order of the Soviet Military Occupational Authority, he produced a list with the names of 182 persons whose bodies he dissected for his research. He remained in his position and continued his research until his death in 1952.

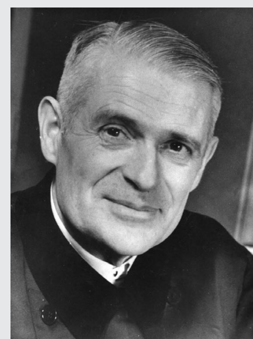


Photo: Hermann Stieve, 1944, by permission of Rebecca Stieve and Angelika Pfarrwaller

Panel 24S: Herta Lindner (1920–1943), whose body was dissected by Hermann Stieve MD[139]

[This text is based on Hildebrandt, 2013[139]]

Photo: Herta Lindner, Regionální muzeum v Teplicích F-01283

Among those who became subjects of Stieve's research were members of the Czech political resistance against Nazi Germany. The 23-year-old Herta Lindner was of German-Czech origin and lived in the border region of Teplitz-Schönau. Raised in a socialist family climate—her father was also a member of the Czech resistance—she became involved with communist resistance groups in this area. In 1940, she started working as a courier in the disguise of a member of a mountaineering club. She was arrested on November 27, 1941, only a day after her father's arrest. Despite being tortured, she did not give up the names of her collaborators. The trial took place on November 23, 1942, and she was sentenced to death for high treason. Lindner was executed on March 29, 1943, appearing on Stieve's list as number 79. Herta Lindner wrote in her last letter to her father on the day of her execution: "I have written her [mother] a farewell letter; I want her, if possible, to take me home, so that I can at least be with her in death."

Panel 25S: Alexis Carrel MD (1873–1944), Nobel laureate and eugenicist

Alexis Carrel, a French-born biologist and surgeon, spent most of his career at the Rockefeller Institute for Medical Research, New York. In 1912, he was the first US-based scientist awarded the Nobel Prize in physiology or medicine. As chief of a department at the institute, Carrel received research assistants from all over Europe to work with him. However, sometimes he refused applicants. One of his colleagues, Tom Rivers, remembered that in 1929 the director of the Institute asked him to employ a young researcher from Berlin, adding "he is so nationalistic, that Carrel had refused to take him."[140] This was Eugen Haagen (1898–1972), later known for the unethical typhus experiments he performed on prisoners at the Natzweiler-Struthof camp.[141,142] As early as 1933, Carrel joined the board of the Emergency Committee in Aid of Displaced Foreign Physicians established by his lifelong friend Emanuel Libman (1872–1946). While this group has been seen by historians as an elitist Committee that did not assist as many people as it might have,[143] and while the role of Carrel within it seemed to have been quite limited, he did personally help at least one young researcher of Jewish descent to escape Nazi Germany, arguing on his behalf with the Rockefeller Foundation. Richard Bing (1909–2010) remained forever thankful to Carrel.[144,145]

In September 1935, Carrel published a book summarizing his biological views on mankind – *Man, the Unknown*. Written as a response to the socioeconomic crisis of the time, the author suggested to rebuild society according to what he saw as the biological laws ruling humanity.[146] Quickly, the book attracted international attention and Carrel was contacted to "adapt" the book to the German reader. Among other things, the publisher of the German edition requested mentioning the "recent German legislative measures" regarding "the defective and the criminals" in support of Carrel's own proposals. In this chapter, Carrel, referring to "the unsolved problem of the immense number of defective and criminals," already suggested that some people "should be humanely and economically disposed of in small euthanasic institutions supplied with proper gases." Following the editor's wishes, he introduced a sentence praising the "German Government" that "has taken energetic measures against the propagation of the defective, the mentally diseased, and the criminal." [147] At the time when the book was published in Germany in 1936, the 'euthanasia' patient murder programme was not yet implemented. Carrel's proposal did not go unnoticed, however, and in 1947, Karl Brandt, Hitler's accompanying physician (*Begleitarzt*) and Reich Commissioner of Sanitation and Health, quoted from it in his defense at the Nuremberg Medical Trial.

Commemoration

Panel 26S: The town of Le Chambon-sur-Lignon and Roger Le Forestier[148]

The village of Le Chambon-sur-Lignon is a commune in south-central France. There and in the surrounding communities, about 5,000 refugees from the Nazi regime found shelter between 1940 and 1944. Among them were 3,000 to 3,500 Jews, many of them children. The residents of this region had had their own history of persecution as Huguenots and acted together in this rare example of a communal rescue effort to aid Nazi victims. They housed the refugees, provided false identification papers and ration cards, and guided them across the border to Switzerland. The protestant minister André Trocmé (1901–1971) led the organized rescue effort by establishing contacts with international aid organisations. Local physician Roger Le Forestier (1908–1944) actively contributed to the rescue of refugees with housing and medical care, which he also provided to members of the Résistance. He was arrested in August 1944 and days later shot by the Gestapo.

In 1990 the town of Le Chambon-sur-Lignon was one of two communities honoured as Righteous Among the Nations by Yad Vashem, the World Holocaust Memorial Centre in Jerusalem, for saving Jews in Nazi-occupied Europe. The other community was the Dutch village of Nieuwland.

Photo: Roger Le Forestier, permission to reprint by family member, grandson Arnold Le Forestier

Supplement C: Curricular examples

C1. Legacy of the Role of Medicine and Nursing in the Holocaust: An Educational Intervention to Support Nursing Student Professional Identity Formation and Ethical Conduct. School of Nursing, Oakland University, Rochester, Michigan. Professors Julie A. Kruse PhD, RN and Hedy S. Wald, PhD

Curriculum Module: 1 hour Seminar—"The Legacy of the Role of Medicine and Nursing in the Holocaust for Resilient Professional Identity Formation" presented by author Hedy S. Wald, PhD as a component of an undergraduate community health nursing ethics curriculum. Attendance was encouraged and suggested readings were provided. Prior to this presentation, students participated in a curriculum module on community health nursing ethical principles/ethical decision-making. A reflective colloquium (45 minutes) followed the seminar.

The seminar provided students with historical knowledge including perpetrator, resistance, and personal narratives (daughter of a Holocaust survivor). Seminar topics included Holocaust origins, racial hygiene, neglect of amoral code, role of empathy and equal worth of individuals, and implications of Holocaust-related ethical issues for contemporary nursing (e.g., potential abuse of power, empathy, hierarchy/obedience, dual loyalties, and COVID-19-related moral complexities/PIF challenges).

The colloquium goal was to guide reflection on the difficult reality of the active role of health professionals in the Holocaust within the context of students' own professional identity formation. This interactive colloquium used humanities for emotional processing and reflecting on seminar content and personal and contemporary relevance; this included art interpretation and interactive, guided reflective writing (RW). Thoughts and feelings evoked by various paintings, some abstract and some Holocaust-related, were discussed, followed by a guided RW exercise about the content and students' identity formation, with invitation to share within the small group.

Assessment: Prior to the programme, students completed a seven-item anonymous survey related to the seminar/colloquium objectives. Students completed the same survey following the seminar/colloquium, with additional items on RW and art, also related to the objectives. The post-programme survey included two qualitative items on takeaways and additional thoughts/comments. Results are reported in the publication.

Readings:

Reis SP, Wald HS, Weindling P. The Holocaust, medicine, and becoming a physician: the crucial role of education. Isr J Health Policy Research. 2019; 8(1): 55. https://ijhpr.biomedcentral.com/counter/pdf/10.1186/s13584-019-0327-3.pdf

Benedict, S. Killing while caring: the nurses of Hadamar. Issues Mental Health Nurs. 2003.

Wald HS, Czech H, Reis SP. Doctors were complicit in Holocaust atrocities. Current and future health care workers need to know that. statnews. Jan. 27, 2022. https://www.statnews.com/2022/01/27/doctors-complicit-holocaust-atrocities/

Wald HS, Weiner CL. Deadly Medicine: Creating the Master Race. Ars Medica. 2009; 5(2): 48-57.

Reference: Nursing Education Perspectives 2022 May 17. Online ahead of print. https://journals.lww.com/neponline/Fulltext/9900/Legacy_of_the_Role_of_Medicine_and_Nursing_in_the.28.aspx

C2. A 3-hour introductory seminar for nursing students entitled "Medicine, Nursing and Nazism". An elective for 1st year students, Universidad de Castilla La Mancha, Spain. Professors Esteban Gonzalez-López and Rosa Rios-Cortés. Universidad Autónoma de Madrid, Spain.

Goals

1. Comparing the characteristics of current medical and nursing professionalism with the actions carried out by Nazi doctors and nurses during the National Socialist period.
2. Analysing the meaning of the Holocaust in the creation and development of rules regarding human testing during research.
3. Developing respectful attitudes towards gender, cultural, health and other differences.

Learning outcomes

1. To promote critical and self-critical reasoning.
2. To maintain ethical integrity and concern for ethics.
3. To recognise the essential elements of the nurse profession, including ethical principles, legal responsibilities and the professional activity regarding the patient.
4. To understand the importance of such principles for the patient's, society's and profession's benefit, especially regarding patient confidentiality.
5. To practice nursing respecting the patient's autonomy, beliefs and culture.
6. To know the fundamentals of medical ethics and navigate moral dilemmas.
7. To acknowledge the economic and social implications of health-care activity regarding efficiency.

Content

1. Historical frameworks (1918-1945).
2. The role of Nazi doctors and nurses in Eugenics and the so-called Nazi Euthanasia (T4 Aktion)
3. Medical experiments in camps.
4. Lessons from the Holocaust for present day Healthcare.

Pedagogy

There were two iterations of the seminar. It lasted for three hours each (44 students). There was an introductory lecture with the viewing of a short documentary about Nazi ideology, Medicine and the Holocaust. Then, the students were exposed to written documents concerning victims of Nazi medical atrocities, the collaboration of nurses, and breakdown of ethical values in present daily care. The methodology encouraged participation and debate. This course could be considered as a contributor to upholding and facilitating Professional Identity Formation (PIF), in the steps Basic/Informative, Intermediate/Formative and Advanced/Transformative.

Assessment

The students were encouraged to express their opinions on the seminar and how to use what they have learnt in their future career.

Class activities

Lectures and discussions in small/large groups.

Schedule & content

- 60': Presentation and introductory lecture "Medicine and Nursing during Nazism".
- 20': Viewing of a documentary on Eugenics and 'Nazi Euthanasia.'
- 80': Discussion in small groups with reading and viewing of written /recorded materials (testimonies of victims of Nazi medical atrocities and moral dilemmas). Each 5-student group receives a set of 8 case studies (4 related to atrocities

committed by Nazi doctors and nurses during the Holocaust, and 4 related to unethical actions carried out today by health-care professionals). They discuss their opinions in their group and after to the large group. Between both, the professors discuss with the students about if those aberrations can happen in the present day. The students have to identify on the texts the following issues:
○ Degradation of medical and nurse professional values.
○ Influence of economic or political pressures on the health-care of patients. How to make decisions at the beginning or the end of a human live.
○ Limits of research.
● 20': Analysis and implications of what they have learnt on the topic for their future practice. Answering of questions. Short lecture. What can we learn from the Holocaust for Medicine and Nursing today?

C3. A 3-hour session within a clinical skills course: A 45-minute interactive didactic presentation followed by 120 minutes small group processing sessions within a clinical skills 1st year in a 4-year medical school curriculum, Safed, Israel May 2022. Professor Shmuel Reis

Overall Aim: A **basic** introduction to medicine, Nazism & the Holocaust with all levels of informative, formative, and transformative learning represented

Learning objectives
At the end of the class participants will:
1. Gain in knowledge and understanding of relevant focused history facts/case studies and their implications that may support the other learning outcomes (informative)
2. Understand the crucial relevance of this history to their professional identity formation (formative)
3. Engage in a reflection on the inherent risk in medicine for abuse of power and consider committing to incorporate this newfound awareness/sensitivity/etc. in their future development. (formative/transformative)

Pedagogy: maximal interactivity in large group followed by small group processing

Faculty development: 30 minutes with the facilitators prior to the class,
Evaluation: Post-session quiz and reflection

Schedule & content
Syllabus & study materials sent to students & facilitators 10 days before class
1330-1400: facilitators' briefing
1400-1405: intro & learners' issues and concerns
1405-1435: interactive didactic Timeline (History) Medical crimes summary (History) Hadamar (T4, role of physicians) Warsaw Ghetto clandestine med school & Hunger disease study (resistance); How healers become killers and inherent risk of abuse of power
1435-1445: discussion
1445-1500: Break
1500-1630: Small Group Processing (see brief video- How healers become killers; Pick 1-2 case studies, about 30 minutes each, and make room for general processing) A processing plan for 30 minutes on each topic is supplied with learning materials and proposed group activities. Ethics & Medical education in Nazi Germany
1630-1645: A quiz, a reflection and feedback

C4. Seton Hall University, Teachers Study Day: Holocaust and Genocide Education, two 90-minute virtual presentations, Boston, Massachusetts, USA. Sabine Hildebrandt MD

2 sessions, lecture (40 minutes) followed by Q & A for 20 minutes

Anatomy and medicine in the Nazi period
- "Introduction to the History of Medicine, Nazism and the Holocaust" (from 9:15 – 10:40 a.m.);
- "From Routine to Murder - Anatomy in Nazi Germany and Its Legacies for Today" (from 11:00 a.m. – 12:15 p.m.)

Reflections on creating a new teaching module after working on the LC report
1. *Content*
I chose a richer historical context:
○ embedded Anatomy in Nazi Germany into a fuller narrative of medicine during that period
○ consciously used case studies and how they illustrate certain aspects of this history
2. *Pedagogy: Sabine's reflections in creating these modules*
- Thinking about learning outcomes other than knowledge gain is new for me in planning lectures on my research topic
- Thinking more about the audience: these are teachers (e.g. high school), not health care professionals; do I have to offer more than knowledge gain for them? E.g. Learning outcomes that go further than the "informative" level of learning, towards "formative" or even "transformative"?
○ Probably not, will most likely stay on the "informative" level
○ Potentially "formative" in impressing the learner with the true need of "why" this history is important, thus helping them teaching with true conviction
○ Potentially "transformative" if they recognize that the mechanisms that led to this history can be detected in similar patterns in the US past and present history of medical care/science and systemic racism
- Can my learning outcomes go beyond the basic level towards intermediate and advanced?
○ This is a half-day webinar with an audience that I don't know, so will stay at basic level.

Learning outcomes

"Introduction to the History of Medicine, Nazism and the Holocaust"
After attending this session, the learner will be able to
1. Describe why the history of Medicine, Nazism and the Holocaust needs to be discussed because it is the **most extreme and best documented example of medical failure and crime** and can shine light on current medical science and practice.
2. Describe how the **potential powers within medicine** can cause health care professionals to collaborate with **political systems** that allow for, and even promote, the unleashing of destructive powers within medicine so that physicians become killers; and likewise, in conditions of oppression by the same political system, health care professionals act within the spectrum between coercion and resistance and may have to negotiate the ability to retain the healing powers of medicine.
a. Reflect on the **destructive powers** of medicine chosen by physicians/nurses/midwives/scientists who aligned themselves with the Nazi regime
b. Reflect on the **healing powers of medicine** chosen by phy-

sicians/nurses/midwives/scientists who were persecuted by the Nazi regime, mostly Jewish health care professionals, and those who opposed the Nazi regime
3. Name at least one example of how this **history sheds light on current events** in health care in the US and health care.
4. Reflect on this history and recognize its **potential to influence behaviour** in the present.

"From Routine to Murder – Anatomy in Nazi Germany and Its Legacies for Today"
After attending this session, the learner will be able to
1. Describe **anatomy as a model** for the changes in **medicine during the National Socialist [NS] regime**, when scientists and health professionals used opportunities provided by the regime for their own purposes, resulting in ethical transgressions.
2. Understand the complex **relationship between anatomists and politics**, including body procurement, research funding and recruitment of personnel.
3. Be able to name the breadth of the **political spectrum** among German anatomists: from being subject to racist and political persecution to passive and active support of the NS regime.
4. Understand the role of **anatomists as physical anthropologists and racial hygienists** in the scientific legitimation of the NS regime.
5. Be able to outline the gradual **changes in the traditional anatomical body procurement** that included an increasing number of Nazi victims.
6. Describe how the use of increasing numbers of NS victims in teaching and research led to **distinct stages of ethical transgressions** that led to a **paradigm change in anatomical epistemology** and ultimately to murder.
7. Outline how **anatomy became part of the NS regime's policies of total physical destruction** and annihilation of its perceived enemies.
8. Describe the **continuities and legacies from this history**, and how they apply today to such diverse questions as tissue ethics and the restoration of the biographies of victims.
9. Reflect on the **echoes** of this history in present US and global events.

C5. Educating Internal Medicine Residents on the Role of Physicians during the Holocaust; Northwell Health Internal Medicine Residency programme (NY, USA), Half a day follow-up on AAMC seminar 2022. Aleena Paul, MD Lauren Block, MD

We incorporated education on the role of physicians during the Holocaust and its contemporary relevance for 110 residents as part of a required yearlong humanities curriculum, embedded into ambulatory educational half-days. The AAMC recorded webinar "Legacy of Medicine During the Holocaust and its Contemporary Relevance" presented by Dr. Hedy Wald and Dr. Sabine Hildebrandt was viewed by small groups, followed by a guided discussion of the content of the webinar, the emotions raised by the material, and what had been surprising. Residents wrote and shared reflections on maintaining humanism in medicine or how the history of medicine during the Holocaust informs one's advocacy and activism. Embedding education on the role of physicians during the Holocaust into a required longitudinal humanities curriculum, with time allotted for writing and sharing of reflections, allowed residents to consider the roles they play as physicians in the world today. Formal evaluation of curriculum impact is in progress.

C6. Medicine during the Holocaust MOOC (Massive Open On-Line Course). A semester-long elective. Hebrew University, Jerusalem. Hebrew version in second iteration 22-3, English version in production for 2023. Dr Michal Ramot; Prof Shmuel Reis.

Intended audience: Health professions learners in all stages of the professional life cycle. No pre-requisites. Interested institutions are welcome to apply for forming a specific virtual "class" with adaptations to their context and needs. For first semester of 2022-23, 200 students (50 of whom are medical students) signed-up.

Intended course outcomes: The course is designed to supply a basic to intermediate level of information about the topic with formative and transformative additional objectives (I-informative, F-Formative, T-Transformative)

Course Objectives: By the end of the course the learner will
1. Reconstruct the history of Medicine, Nazism and the Holocaust (I)
2. Identify, describe and critically discuss how healers become killers on one hand and what makes a morally courageous healer, in view of the inherent potential for abuse of power in healthcare (I, F, T)
3. Reflect on the question, how would I have behaved in those impossible circumstances? (F)
4. Assess personal professional Identity Formation, relative to pre-course (F)
5. Examine personal empathy, compassion and biases towards "the other" and commit to diversity, equity and inclusion (F, T)
6. List and discuss the origins of current bioethics, from the Nuremberg Code onwards (I)
7. Assess personal moral development & moral resilience (F)
8. Identify, frame and analyse critical ethical issues concerning individuals and populations within 21st-century challenges (I, F)
9. Review and critique moral distress and injury in health-care, as well as the unavoidable gap between moral ideal and reality, and demonstrate critical self-consciousness, assessment and plan to face these challenges aiming for growth in coping, resilience, character and moral conduct. (I, F, T)
10. Commit to identifying, preventing and dealing with mass atrocities as a health professional core competency. (I, F, T)

Evaluation:
1. A pre/post self-assessment survey & knowledge and attitudes questionnaire
2. Multiple reflective assignments

Syllabus MOOC medicine in and after the Holocaust-

Structure: 12 modules, Each module starts with a short video introduction - orientation by course directors and reading of the module syllabus, following are relevant short video-recordings of content by leading experts interspaced with comprehension activities, suggested additional reading, and

assignment and additional resources, and ends with a short video wrap-up. Specialized modules exist: nursing and midwifery, DEI (diversity, equity and inclusion) Curriculum (work in progress)

Content
1. Introductory Unit (Pre-course)
2. Eugenics and antecedents of the Nazi death industry
3. Nazi Medicine as a (warped) public health programme: 'euthanasia' and extermination
4. The collusion of Academia I, Nazi Ethics
5. The collusion of Academia II - Anatomy in the third Reich
6. Medicine in the Ghettos & Camps
7. Doctoring in Impossible Circumstances: resistance & courage
8. Human subjects' experimentation
9. How healers become killers
10. The dark & enlightened faces of medicine in the Holocaust: Bergen Belsen liberation
11. After the war I: trials & codes, fate of Nazi doctors,
12. After the war II.: Survivor care, PTSD, resilience, memory and apologies
13. Wrap up: the moral education of the health professional, final reflection

C7. A semester-long Genetics Course, division of biology, University of Missouri, Columbia, Missouri, USA: Genetic Engineering: Miracle for Humanity or New Pathway to Eugenics? Fall 2021. Hybrid (In-Person/ Asynchronous Online). Professors Mannie Liscum; Michael L. Garcia

Course Description: The purpose of the course is to introduce students to the implications of genetic engineering from multiple vantage points. As alluded to in the course title, the course will delve into various approaches and applications of genetic engineering, from the pre-molecular era eugenics movement to emerging present-day development of precision medicine. We will examine these approaches and applications through lectures, documentary films, readings, debate, and extensive discussions, so as to address both positive and negative impacts on science and society. Students will engage in both individual and group work, with regular instructor feedback and prompts.

Learning Objectives & Goals: Students in this class will critically examine genetic engineering methodologies and applications, and identify and describe the potential pitfalls of such approaches (both technical and ethical) in historical, present day and future contexts. Students will be asked to apply this information through quizzes, written work, group discussions, and debate. Students will be expected to work independently, in small groups, and as part of the larger class, to synthesize, integrate and share gained understanding with a goal toward learning how to reflect upon, question and communicate the roles and impacts of science in society more effectively.

After you complete this course, you should be able to:
1. Examine discussions of scientific concepts and applications, across a range of media platforms, with a critical eye toward impacts on society.
2. Identify and Describe positive and negative aspects of scientific 'advancements' as they relate to society and science itself.
3. Apply your nuanced understanding of scientific 'advancements' to novel challenges.
4. Debate the positive and negative aspects scientific 'advancements' in clear and objective ways with peers and other members of society.
5. Synthesize, Integrate, Reflect upon, and Question, within broader historical, ethical and moral contexts, new scientific 'advances', applications and interpretations as they arise.
6. Communicate and Share your critical understanding of scientific 'advances' as well as their potential ethical and moral impacts with society more broadly

Liscum M, Garcia ML. You can't keep a bad idea down: Dark history, death, and potential rebirth of eugenics. The Anatomical Record. 2022 Apr;305(4):902-37.

C8. Medicine in the reflection of the Holocaust (MDTH), required, 2d year (155 students), Goldman faculty of medicine, Ben Gurion University of the Negev, Beer Sheva, Israel; Prof Matthew Fox

Course Objectives
1. *Understanding* the scientific, medical and ethical worldview that underpinned the crimes of the Nazi regime, the culmination of which is expressed in the "Final Solution" to European Jewry.
2. *Distinguish* the similarities and differences of components of this worldview in other Western cultures prior to the Nazi era, as well as current legacies which accompany us today.
3. *Identifying* the expression of this worldview in medical ethical crises before, during and after the Holocaust.
4. *Explore* the role of German medical and research institutions in the commission of crimes committed by the Nazi regime, and the implications for the present.
5. *Examine* the deterioration of the moral character of the medical leadership, from complicity to leading the crimes of the Nazi regime.
6. *Scrutinize* the challenges and demands of the profession and professionalism in medicine then and now.
7. *Recognize* bias and discrimination implicit and explicit in the medical treatment conducted on disempowered populations in past and present.
8. *Contend* with the ethical failures in past, present and future of medical research.
9. *Grapple* with the range of reactions and decisions available to the victim-physician facing "choiceless choices" and irresolvable ethical dilemmas.
10. *Appreciate* the uniqueness of the Jewish medical services in the ghettos, and its unprecedented nature in the context of history of genocides. Assessing the role of physicians as community leaders and a model of resistance and heroism by professionalism.
11. *Discern* the connection between silence and the factors that hinder speaking up and exposure of medical crimes then and today.

Learning outcomes
Learning outcomes are related to four skill sets, matching the vision of the **Ben Gurion University** Medical School's graduate. Upon successful completion of the course, students will gain skills in all four domains:
1. The Physician as a Caregiver: will be more empathetic and sensitive to the needs and rights of their patients while bearing in mind the essential ethical values stemming from

an understanding of the profound and grave ethical malfeasance of the Nazi physicians.
2. The Physician as a Researcher: will conduct research bearing in mind the ethical values learned from the Holocaust and recognize the imperative to safeguard these values.
3. The Physician as an Educator: will be a role model for trainees as a virtuous and ethically principled figure in all areas of responsibility and will educate their trainees in light of the ethical lessons of the Holocaust.
4. The Physician as a Person: will recognize the power of their choices and agency to impact their reality and the world around them.

Attendance procedures: Mandatory attendance and active participation in each class session. Approved absence according to university procedures will require the completion of a makeup assignment customized to the class missed.

Teaching methods
1. Frontal lectures.
2. Project based learning*. Short academic assignments (research, summary, and presentation).
3. Preparation and discourse in a structured discussion in the form of an academic debate*.
4. Active viewing of short film clips and submission of guided viewing questionnaires.
5. Discussion in reflective discourse circles
6. Participation in the International Holocaust Memorial Day Seminar (Faculty wide event).
7. Processing the course experiences by submitting structured written reflection diary entries*.
8. Course conclusion - processing of the course experience through a written reflective summary.
* Alternative assessment based on independent division of the class in the first week to assignments

Evaluation
Passes / does not pass based on attendance, submission of all assignments and participation in group discussions.
Course assignments
In person participation in all course sessions.
Submission of personal assignments * of the course according to the instructions given on the course website on Moodle.
* According to an independent division of the class in the first week

Course content and structure
The course is based on individual units of study. Each unit has one main component. The units are structured in a logical order so that each unit relies on the knowledge acquired in the previous unit. The order of the lectures are planned, however may vary as needed.

Course units
1. General Introduction to the Course + "All Quiet on the Western Front" (German: *Im Westen nichts Neues*) 1914-1945 Historical background
2. Eugenics—the scientific and medical propaganda as a foundation of Nazi crimes
3. Exclusion—the infrastructure of Jewish medical services during the war.
4. 'Euthanasia'—'life unworthy of life' (German: *Lebensunwertes Leben*)
5. Experimentation—research and experiments in the Nazi era .
6. Extermination—death camps, righteous among the nations', and moral resilience.
7. Medical experiments and ethics—past, present, future.
8. The impact of the Holocaust on the discourse and bioethical practices in Israel today.
9. Ethical dilemmas—resource allocation.
10. Ethical dilemmas—treatment of Holocaust survivors today + the Physician as an agent for change.
11. Saving a soul is to save a world—and what about our soul? Whistleblowing, burnout, hierarchy, the hidden agenda, and physician wellbeing.
12. On the eve of the International Holocaust Memorial Day, the treatment of people with disabilities in the health care system is treated
13. Small group discussions (1 hour X 2 on various dates*)

C9. Nursing School (MSN), Course Title: Medicine, Nursing, and Leadership during the Holocaust: Leadership in Clinical Nursing: Here, Now, and in the Future. Semestrial, required. The Lev College, Jerusalem, Israel. Professor Anat Romem; Dr Zvika Orr

The Goals of the Course:
"Four months after the sealing of the [Warsaw] ghetto, one of the nurses described the ghastly conditions in the hospital in her diary.

...When I come to my ward, it's a real hell. Children, sick with measles, lie in twos or threes to a bed...shaved little heads...covered with lice...My assistant and I have to take care of fifty children. Pressure of work drives us crazy...There are ten children waiting in the reception room...I have no beds, no linens, no blankets nor sheets...The rooms are terribly cold, the children huddle under the blankets and the fever shakes them...In the entrance hall lies a boy of five, swollen with hunger. He is in the last stage, his life ending because of hunger...he utters for the last time "a piece of bread"...Dead for a piece of bread."

Miriam Offer, White Coats in the Ghetto, pp. 273-274, drawing on Joseph Kermish, To Live with Honor and Die with Honor, pp. 403-404.

In this course, we discuss the Holocaust in its historical, social, and medical-nursing contexts. We review the way of life and survival inside the Ghetto, while emphasizing the healthcare systems that existed in the Ghetto, Jewish leaders and the way they coped with those hellish conditions. We also examine the role that physicians and nurses played in perpetrating Nazi crimes, at one of the lowest moral points in the history of the medical and nursing professions. We explore the effects of the Holocaust on the current day and age, including current care and treatment of Holocaust survivors. Studying the period of the Holocaust leads us to consider moral, social, and professional dilemmas and challenges, both concurrent and universal, that are relevant to the nursing profession. We also review cases of genocide committed in other places and times, touch on issues related to racism, denial, resistance, and leadership during extreme crises, and reflect on their potential implications for the nursing practice.

Learning objectives
Upon completing this course, the student will be able to:
1. Act as a professional leader guided by humanistic and moral values, while operating from a multicultural perspective.
2. Critically examine ethical issues and dilemmas that arise from the study of history.
3. Provide patient and family-centered care while respecting individual patients' uniqueness, their personal beliefs, culture, and personal history.
4. Engage in continuous, deep, and meaningful learning, which produces moral ethics that contribute to the student's society, profession, and field of expertise.
5. Demonstrate community engagement and civic responsi-

bility, promoting humanistic and democratic values, tolerance, and human rights.

The Course Contents

The course includes a wide range of discipline-based and theoretical perspectives, shedding light on different aspects of the issues studied. To this end, the course is comprised of lectures presented by the school's faculty members, Dr. Anat Romem, Dr. Zvika Orr, Dr. Haya Raz, Dr. Laurie Glick, and by guest lecturers, including Rabbi Yisrael Meir Lau, Prof. Yair Auron, Dr. Miriam Offer, Dr. Shai Feuering, Dr. Tessa Chelouche, and Dr. Sharon Geva, among others.
Furthermore, the course includes two field trips:
1. The course opens with a visit to the history museum at Yad Vashem, emphasizing the development of the "Final Solution."
2. The second field trip is to The Ghetto Fighters' House Museum, located in the Western Galilee. We visit the exhibition titled "Deadly Medicine: Creating the Master Race," and the "Concentration and Extermination Camps" exhibition.
The students participate in a workshop about "Healing by Killing." They also discuss the dilemmas encountered by the healthcare professionals who worked in the Jewish Ghettos.
The course includes the following subjects:
- Law and morality in Nazi Germany – race and racism, dehumanization, eugenics, forced sterilization, and 'euthanasia,' and their connection to medicine and nursing.
- The role of German doctors and nurses in performing and executing Nazi crimes.
- The Nazi perception of leadership and its inherent dangers.
- Jewish Warsaw—The Jewish aid and rescue organizations: TOZ (Jewish healthcare organization), CENTOS (Jewish organization in Poland for orphan care), the Jewish community's self-help organization, the Joint, the Judenrat (Jewish Ghetto administrative council) and their roles within the Ghetto.
- Jewish doctors and nurses during the Holocaust, medical ethical dilemmas encountered while treating patients in the Ghetto, rescue dilemmas.

C10. Longitudinal strand: Curricular teaching on Medicine during the Nazi period and the Holocaust (MNH) at Giessen University Medical School;
coordinated by the Institute of the History of Medicine, Giessen University, chair: Volker Roelcke

1st year (1st semester)
practical course on **Medical Terminology/Language in Medicine:** in this context, input e.g., on:
- use and abuse of metaphors/metaphorical language in medicine, and medical terms in the public sphere: e.g. state, nation etc. as "organism"; foreigners/migrants/ "others" (individuals or social groups) as infectious agents/germs threatening the healthy "organism"; political interventions as "surgery", etc.
- the grammatical prefix "eu-" is used as entry point to shortly explain the origins and implications of the terms eugenics and euthanasia
- the grammatical suffix "-gen" is used to explain the meaning of "iatrogen", i.e. harm or disease caused by the (unintended or intended) intervention of physicians => ambivalence of the factual power of physicians in the doctor-patient relationship, with the most extreme form being physicians "cleansing", or "curing" the "folk body" (*Volkskörper*) of the German population in the context of the Nazi period (altogether ca. 60 min)

3rd year (5th semester)
lecture series on **History, Theory, Ethics of Medicine** (8 lectures, 90 min each); 1 lecture specifically devoted to MNH, aspects of MNH also integrated in further lectures on broader topics:
- lecture 1: **Hippocratic Oath and Declaration of Geneva of the World Medical Association: Origins, Contents, Legal Status** (=> foundation of WMA 1947 and Declaration of Geneva of 1948 as responses of international medical community to MNH and Nuremberg Medical Trial) (90 min)
- lecture 2: **The Concept of Experiment, the Laboratory Revolution and the Emerging Priority of Laboratory Knowledge in Medicine in the late 19th/early 20th Century** (=> shift of focus from suffering individual to diseased body, emergence of the patient as an "object"; idea of the analysis, manipulation and enhancement of the human nature) (90 min)
- lecture 4: **Medicine during the Nazi period and the Holocaust: Historical Knowledge, Implications for Today**
- lecture 6: **Basic Concepts, Theories, and Institutions in Medical Ethics/Bioethics** (=> specific concepts such as autonomy, and institutions as an answer to medical scandals, e.g. MNH/Nuremberg Medical Trial, Tuskegee Study)
- lecture 8: **The Concept of "Race" and Racism in Society and Medicine: Historical Origins, and the (Co-)Responsibility of the Sciences** (=> origins and trajectory of the concept of "race" in biology, medicine, philosophy from the 18th to the present, impact of scientific/scholarly knowledge on the public authority of racism and antisemitism, racism as a public health issue) (90 min)

4th year (8th semester)
obligatory seminars in **History, Theory, Ethics of Medicine** (7 x 90 min, ca. 20 participants/seminar group): students choose one seminar/topic from list of eight optional seminars; one of the seminar options devoted specifically to MNH:
- **Medicine During the Nazi Period: Historical Knowledge, Implications for Today** (7 x 90 min)
MNH-related contents also integrated in other seminar-options on broader topics (e.g.
- **Human Subject Research during the 20th Century: Historical Evidence, Ethical Implications** (7 x 90 min)
- **Dying and Death: Debates on a "Good" Death, Past & Present** (7 x 90 min)
- **Medicine and Economy: History, Politics, and Ethics of the Allocation of Scarce Resources in the Health System: Prioritization, Exclusion, and the (In-) Compatibility with Human Rights** (7 x 90 min)
one seminar-option: **Systematic Patient Killings by Physicians: "Euthanasia at Hadamar"** (includes exposure: excursion to Hadamar Memorial) (1 day)

Methods of teaching in the seminars include oral presentations by teacher and students, small group and individual homework, discussion of results in plenary group (20 students); teaching material is provided online.

Evaluation tools will be adopted according the suggestions formulated during the Lancet Commission; previously used tools were „self-constructed“ (quantitative scaling plus open-ended questions).

extra-curricular: **Colloquium on the History of Medicine and Science:**
presentation of ongoing research projects (invited speakers from Germany and beyond), with focus on medicine and biomedical sciences in the 20th and 21st century, regular presentation on medicine during the Nazi period and the Holocaust, and implications for post-World War II medicine and bioethics.

C11. Cultivating Medical Awareness and Ethics Using the Example of Medicine in National Socialism: a three-year elective, interprofessional curriculum and didactic model for academic teaching as a contribution to professional identity formation and moral development. Witten-Herdecke Faculty of Medicine, Germany. Professors Diethard Tauschel MD; Peter Selg MD, F. Edelhäuser MD, A. Witkowski MD, Hedy S. Wald PhD

The Holocaust and Medicine curriculum at Witten-Herdecke Faculty of Medicine, Germany (Tauschel et al, 2020) offers annual focal topics and medical ethics seminar trips to memorials of persecution and extermination under National Socialism in Germany. It provides insights into the origins, development, systematic implementation, and effects of the barely conceivable and yet humanly possible - and how medical system and actors were interwoven and layered in establishing industrialized killing of German psychiatric patients, opponents of the regime, and the Holocaust. This curriculum supports professional identity formation, moral development, and application to contemporary medicine with its medical-ethical challenges. Most participants have been medical students to date, and psychology and business studies students have also participated.

Curriculum content includes testimonies of Jewish Holocaust survivors, biographical narratives of Jewish prisoners as well as National Socialist doctors, medical professional behaviour including possibilities and forms of resistance, origins of eugenic thinking and 'euthanasia,' egregious medical experiments, the "distorted image of man" under National Socialism, and systematic persecution, capture and forced labour of enemies as well as opponents of the Nazi system.

Yearly study trips are to Auschwitz-Birkenau, Hadamar, and Buchenwald, as well as Erfurt, the location of the historical museum of Topf & Sons, the company that constructed the crematory ovens in Auschwitz ovens builder. Students can earn up to 4-6 ECTS (European Credit Transfer and Accumulation System) within each curriculum year. In addition to the study trip, students meet 7-10 times for 1.5 – 3.5 hours, as well as outside the classroom for content-related small-group and preparatory work for the presentation day (described below). The curriculum is facilitated by the Faculty of Health including the Integrated Curriculum for Anthroposophic Medicine (ICURAM - lead facilitator) and Department of Education of Personal and Interpersonal Competences in Health Care in collaboration with faculty of the Ita Wegman Institute, Switzerland. It is implemented within Studium Fundamentale, a required course module for all Witten-Herdecke medical students which offers course options. Didactics consist of lectures, discussions, task-based learning with individual required reading related to the topic of the year und small group work, multi-day study trips to memorial sites with commemoration, study of files of original material, reflective writings, a diverse set of humanities components, and service learning. The latter occurs as a public presentation of the results of each year's work, prepared and conducted by participating students.

Riesen and colleagues' qualitative thematic analysis of medical and psychology students' reflective writings during an Auschwitz study trip component of a medicine during Nazi Germany and the Holocaust curriculum revealed positive curriculum impact on personal and PIF (Riesen et al, 2023. Their results indicated the curriculum catalysing a critically reflective learning/meaning-making process supporting personal and PIF including critical consciousness, ethical awareness, and professional values. The analysis revealed formative curriculum elements of narrative (including first-person testimonial of a daughter of an Auschwitz survivor), supporting emotional aspects of learning, and guided reflection on moral implications. Subthemes referring to impactful course elements of "power of the place," "emotional experience," "reflection on myself as a moral person," and "contemporary relevance" were described as particularly compelling.

References:

Tauschel, D., Selg, P., Edelhäuser, F., Witowski, A., & Wald, H. S. Cultivating awareness of the Holocaust in medicine. The Lancet. 2020; 395(10221):334. https://doi.org/10.1016/S0140-6736(19)32613-3

Riesen MS, Kiessling C, Tauschel D, Wald HS. "*Where My Responsibility Lies*": Reflecting on medicine during the Holocaust to support personal and professional identity formation in health professions education. GMS J Med Educ. 2023; 40(2), in press.

C12. Complex "T4"—The National Socialist (Nazi) 'Euthanasia'-Murders. A virtual Excursion to the Memorial and Information Site for the Victims of National Socialist (Nazi) 'Euthanasia' Murders, at Tiergartenstrasse 4 in Berlin, Germany. Professor Maike Rotzoll MD

"The Memorial and Information Point for the victims of the National Socialist 'euthanasia' killings" at the former location of Tiergartenstrasse 4 in Berlin has been in existence since 2014. This is the site where—between 1940 and 1945—administrators and doctors organised the mass murder of people with intellectual disabilities and mental illness. The annihilation of more than 70,000 patients in institutions was later named 'Aktion T4' after this address." This is the start of the introduction to the virtual exhibit on the website for the national memorial for this group of Nazi victims in Berlin (https://www.t4-denkmal.de/eng). The virtual exhibit complements an open-air information station at the historical site. However, the site and the website are not exclusively intended to commemorate the persons who were murdered in the central phase of the so-called 'euthanasia.' It stands for the entire 'T4 complex' and thus includes psychiatric patients murdered in other Nazi medical crimes, as well as victims of forced sterilization. In addition, the exhibit is intended to provide information about the historical context of the medical crimes, to convey pre- and post-crime history, and to elucidate connections to the Holocaust and the European dimension of the 'euthanasia' murders.

A virtual excursion cannot replace a visit to one of the historical sites of the patient murders - such as Hadamar in Hesse or Hartheim near Linz in Austria. This form of authenticity cannot be substituted. However, travel is not always possible—because of the distance or because of a pandemic, for example. With this virtual excursion to the memorial and information site for the victims of the National Socialist 'euthanasia' murders, the offer is made to deal with the topic in depth via the internet platform of the open-air exhibition at the historical site at Tiergartenstrasse 4.

The lesson plan is as follows:

Obligatory reading of two texts serves as a preparation for all participants:

a) **Rotzoll M. et al.: The First National Socialist Extermination Crime: The T4 Programme and its Victims**, in: International Journal of Mental Health 35,3 (2006), pp. 17-29.

b) **Fuchs P. and Rotzoll M.: Remembrance means to commemorate and to inform. Conception of an exhibition at a difficult place**, in: Beyer C. et al. (Eds.): Tiergartenstrasse 4. Memorial and Information Point for the Victims of National Socialist 'Euthanasia' Killings, Berlin: Foundation Memorial to the Murdered Jews of Europe, 2016, S. 44-51.

All participants also choose [or are assigned] one of the following overarching themes and are given one longer or two short additional texts. The topics are:

1. History of Psychiatry - the 'asylum' and the National Socialist 'euthanasia' murders
2. 'Euthanasia' and World War II—patient murders in the occupied territories
3. Progress without respect—medical research and the 'euthanasia' murders
4. Unbroken continuity? Eugenics/Racial Hygiene and the 'Euthanasia' Murders
5. Crime and Punishment? Post-War History of the 'Euthanasia' Murders

All participants visit the website of the memorial and information site (https://www.t4-denkmal.de/eng) at a time of their own choosing and fill out a questionnaire. This should be handed in by the evening before the respective small group meeting. In addition, each participant chooses a biography of a victim or perpetrator that fits to the individual reading (biographies can be found on the website of the exhibition).

This is followed by a meeting of about 90 minutes with up to five participants, each via conference call. The small groups are formed in such a way that the different topics are represented. The meeting serves on the one hand the purpose of reflecting on the virtual exhibit, its contents, its possibilities and its limitations, and on the other hand to discuss the individual readings and the selected biographies that the participants present.

Finally, all participants write a short essay of about two pages in which they place the selected biography in its historical context with the help of the available literature. In addition to active participation in the discussion, this will be the basis for the students' final grade.

Selected literature for the five topics:

1. History of Psychiatry—the 'asylum' and the National Socialist 'euthanasia' murders

a) Burleigh M.: Psychiatry, German Society, and the Nazi 'Euthanasia' Programme, in: Social History of Medicine 7 (1994), pp. 213-228.

b) Steppe H.: Nursing in Nazi Germany, in: Western Journal of Nursing Research 14 (1992), pp. 744-753.

2. 'Euthanasia' and World War II—dynamics of extermination

a) Seeman M. V.: What Happened After T4? Starvation of Psychiatry Patients in Nazi Germany, in: International Journal of Mental Health 35,4 (2006), pp. 5-10.

b) Nasierowski T.: In the Abyss of Death: The Extermination of the Mentally Ill in Poland During World War II, in: International Journal of Mental Health 35,3 (2006), pp. 50-61.

c) Seeman M. V.: The Fate of Psychiatry Patients in Belarus During the German Occupation, in: International Journal of Mental Health 35,3 (2006), pp. 75-79.

d) Bailly-Salin P.: The Mentally Ill Under Nazi Occupation in France, in: International Journal of Mental Health 35,4 (2006), pp. 11-25.

3. Progress without respect—medical research and the 'euthanasia' murders

a) Martin M. et al.: German Neurology and the 'Third Reich,' in: European Neurology 76 (2016), pp. 234–243.

b) Roelcke V. et al.: Psychiatric research and 'euthanasia'. The case of the psychiatric department at the University of Heidelberg, in: History of Psychiatry 5 (1994) pp. 517-532.

c) Neugebauer W. and Stacher G.: Nazi Child 'Euthanasia' in Vienna and the Scientific Exploitation of its Victims before and after 1945, in: Digestive Diseases 17 (1999), pp. 279–285.

4. Unbroken continuity? Eugenics/Racial Hygiene and the "Euthanasia" Murders

a) Roelcke V.: Eugenic concerns, scientific practices: international relations in the establishment of psychiatric genetics in Germany, Britain, the USA and Scandinavia, c.1910–60, in: History of Psychiatry 30 (2019) pp. 19–37.

b) Westermann S.: Secret suffering: the victims of compulsory sterilization during National Socialism, in: History of Psychiatry 23 (2012) 483–487.

5. Crime and Punishment? Post-War History of the "Euthanasia" Murders

Marrus M. R.: The Nuremberg Doctors' Trial in Historical Context, in: Bulletin of the History of Medicine 73 (1999), pp. 106-123.

C13. A Day in a Holocaust Museum (based on a Rappaport medical school, Haifa, Israel programme that was implemented in the 5th and later the 3d year of the curriculum through a required full day visit to the Ghetto Fighters' Museum, Lochamei Hagetaot, Israel)
Professor Shmuel Reis

Goals: Introduce students to medicine during the Holocaust and Beyond. Following the first event in 1999 where a student wrote that the experience was about conscience development, we have adapted the term as a goal too.

Content

1. The Nuremberg Code and medical ethics post the Holocaust
2. The collusion of physicians and medicine with the Nazi regime
3. The physician under coercion
4. Care of survivors and their off-spring

Audience: an entire medical school class- 60 students

Teachers: 20 content experts have agreed to participate in different days, eventually we managed the teaching with medical school and museum personnel

Assessment: a post-programme feedback form with room for qualitative remarks

Pre-day requirements: watch "Healing by Killing" documentary

Programme

0830-0845: opening and introducing the day
0845-0930: prof Eran Dolev: Eugenics (the opening lecture was different each year, but of course relevant)
0930-1300(including a refreshments break): Rotating in small groups through 3-4 exhibitions and having a group discussion on site.
Exhibitions examples: Auschwitz or Treblinka model, Warsaw Ghetto, the Gallery (art work pf the Holocaust). In later years the "Deadly medicine "exhibition became available in the Museum.
1300-1345: Lunch
1345- 1500: Small groups processing with a content expert and a museum guide
1500-1545: A general discussion and feedback
1545-1600: wrap-up

C14. Oakland University William Beaumont School of Medicine, Michigan, USA; Holocaust and Medicine Programme, Study Trip to Auschwitz. Jason Adam Wasserman, PhD, HEC-C; Hedy S. Wald, PhD.

A component of the Holocaust and Medicine Programme at the Oakland University William Beaumont School of Medicine is a Study Trip to Auschwitz which provides an opportunity for medical students to delve into this distinctive and tragic era in the history of medicine and critically reflect on its implications for one's own personal and professional development. The trip is fully funded for the students. This experience includes a pre-trip curriculum, a 7-day trip to Krakow and Auschwitz in Poland, and a post-tour workshop on site where students begin preparing their presentations for educational impact upon their return. The pre-trip curriculum includes three modules on 1) Holocaust history, 2) legacy of medicine during Nazism and the Holocaust and its contemporary relevance, and 3) interactive reflective writing and professional identity formation in medical education and practice. Each module includes readings and videos to provide historical background as well as prepare students for the reflective activities they will engage in during the trip. The trip includes two days in Krakow with tours of the Jewish Quarter and former Jewish Ghetto, among other sites. In Auschwitz, students participate in guided tours and attend lectures from historians on medicine during the Holocaust. Students also share their reflections about assigned memoirs and biographies of victims (including survivors) at designated tour locations relevant to those narratives. Reflective writing sessions including group discussions are held in the evenings and include sharing insights about how this experience will affect their future careers as physicians and about the contemporary relevance of this history for the medical profession including clinical practice, research, and public policy. Following the trip, students participate in a 7-week seminar where they continue to discuss and reflect upon the trip experience, then shift their focus to developing projects and presentations enabling them to share what they learned with their classmates, the larger university, and the wider community. Presentation venues include a community symposium dinner, a local organization of Jewish physicians, bioethics courses in the medical school and undergraduate programme, and grand rounds at the hospital.

C15. An Example of a Study Trip to Holocaust and Medicine-related sites for students registered for the course: *The Holocaust, A Reflection from Medicine*. Professors Esteban Gonzalez-López and Rosa Rios-Cortés. Universidad Autónoma de Madrid, Spain.

Background:
A study trip to Holocaust and Medicine-related sites can be an overwhelming experience for anyone, but for medical students it has a special significance. Visiting the places where Nazi doctors conducted atrocious medical experiments or the facilities where the killing of people with disabilities took place can have an impact on the way in which students understand bioethics. These are sites where the values we want to transmit in our course, such as tolerance, non-discrimination, and the value of human life, can be both learnt and taught.

Goal
- To reflect on the role played by doctors and nurses today by using the examples of Nazi, Jewish and prisoners doctors in Nazi concentration and extermination camps as well as in the ghettos and in the facilities for so-called "euthanasia."

Learning outcomes
- To promote critical and self-critical reasoning.
- To maintain ethical integrity and concern for professional ethics.
- To recognise the essential elements of the medical profession, including ethical principles, legal responsibilities and the professional activity regarding the patient.
- To understand the importance of such principles for the patient's, society's and profession's benefit, especially regarding patient confidentiality.
- To make use of social justice during professional practice and understanding the ethical implications in a world in constant change.
- To practice medicine respecting the patient's autonomy, beliefs and culture.
- To know the fundaments of medical ethics and deciding on moral dilemmas. Practising medicine with excellence, altruism, sense of duty, responsibility, integrity and honesty.
- To acknowledge the economic and social implications of medical activity regarding efficiency.
- To humanise the victims of the Holocaust and the victims of Nazi medical atrocities and pay tribute to them.
- To contribute into the development of awareness of democratic values, and knowledge about the History of Europe

Content
- Study visits to Holocaust and Medicine-related sites in Nazi concentration and extermination camps, the places of the so-called Nazi "euthanasia," as well as memorials and places of remembrance.

Pedagogy
Our visits always include a daily educational activity such as lecture or reflection.
We stop at significant places in Nazi camps, ghettos and memorials, where the students read testimonies of victims, complementary information about the site, or poems.
We provide the students with educational material about the camps and ghettos, as well as testimonies of the victims.
However, apart from the information that we provide, it is essential that the students be prepared psychologically for the trip. The students are asked to personalize the victims in order to see them as living beings and not merely a name or number. That is why, when viewing some of the exhibits we encourage the students to focus on a shoe, a suitcase or a photo, and try to envisage the owner and the kind of life she or he lived.
Students should receive daily information about what they are going to visit, the significance of the place and its relation to the Holocaust and Medicine. As they often have very strong emotions in some places, especially at the gas chamber or in the barracks, it is very important to meet before and especially after the visit. We talk about their impressions and emotions, so they can express their feelings. The teachers should be trained to cope with such situations.
This study trip could be considered as a contributor to upholding and to building Professional Identity Formation (PIF), in the steps Advanced/Transformative.

Assessment
The students are encouraged to write some reflective writing on the study trip (reflection, poem).

Class activities
After our trips, we invite students to share their experience with their classmates in the next course. This is more powerful than any explanation we can give.

Schedule & content
See at:
- González-López E, Ríos-Cortés R. Visiting Holocaust-Related Sites with Medical Students as an Aid in Teaching Medical Ethics. IMAJ 2016; 18: 257-260. In https://www.ima.org.il/filesupload/IMAJ/0/197/98671.pdf
- González-López E, Ríos-Cortés R. Visiting Holocaust: Related Sites in Germany with Medical Students as an Aid to Teaching Medical Ethics and Human Rights. Conatus, 2020, 4(2), 303-316. In https://ejournals.epublishing.ekt.gr/index.php/Conatus/article/view/20963

C16. A semester long course, Ethics, Medicine & the Holocaust: Legacies in Health & Society. Center for Bioethics and Humanities, University of Colorado Anschutz Medical Campus. Professor Daniel S. Goldberg, J.D., Ph.D.

Course Objectives:
By the time this course is complete, learners will be able to
1. Describe the roles that health care professionals played in supporting and resisting the Third Reich (including but not limited to the Holocaust).
2. Analyse the implications of health care professionals' participation in the Third Reich for contemporary health care ethics.
3. Explain the implications of the Holocaust for the problem of evil; and
4. Evaluate at least three approaches for preventing genocide and crimes against humanity.

Course Description: The core content of the course engages the disturbing fact that German health care professionals – especially physicians but also nurses, pharmacists, dentists, midwives, and public health practitioners – actively participated in the architecture and machinery of the Third Reich. German physicians in particular joined the Nazi Party in proportions that greatly exceeded the rates at which other professionals joined. The course explores the implications of these facts for contemporary problems of applied health ethics, and expands beyond the Holocaust to consider the ramifications of this history for our understanding of the problem of evil in general: why, under certain circumstances, do so many otherwise "good" people readily and willingly do terrible things? Furthermore, attempted genocides have not disappeared after the Holocaust; nor have health professionals stopped participating in acts of ideologically-motivated violence and other breaches of human rights. This suggests that some important lessons of the Holocaust were not learned, and/or might be un-learnable. Yet, many medical and legal scholars and activists have taken the perspective that health professionals should, or must, play unique roles in protecting against human rights abuses. Accordingly, questions of why acts of genocide continue, what possible interventions can be used to impede or stop them, and what should be the role of health professionals, in particular, in efforts to support human rights remain crucial. The course will equip learners with the tools to analyse such inquiries.

Evaluation:
Students will be graded according to their written work and class participation. There are two kinds of writing in this course: reflective writing, or writing-to-learn, and academic writing.

C17. A three-hour required curriculum module: Holocaust and Medicine Education for Resilient Professional Identity Formation & Ethical and Historical Challenges in Development of HeLa Cells (Henrietta Lacks)

Betsy Goebel Jones, EdD, Simon Williams, PhD, & Hedy S. Wald, PhD
Texas Tech University Health Sciences Center School of Medicine, Lubbock, Texas

A three-hour required curriculum module was held as part of the Patients, Physicians, and Populations (P3) doctoring course for all first year medical students (N =180), post-baccalaureate programme students (N =15) and faculty (N = 38 who wished to attend). All students attended the seminar "Holocaust and Medicine Education for Resilient Professional Identity Formation: A Holocaust Survivor's Daughter Teaches German Medical Students at Auschwitz" presented by Hedy S. Wald, PhD. Half the students then attended a reflective colloquium with Dr. Wald which utilized guided reflective writing, art interpretation, and group discussion for further reflection on the seminar content and its contemporary relevance, personally and professionally. The other half of the students attended a group discussion on Henrietta Lacks and the Ethical and Historical Challenges in the Development of HeLa Cells. The students then switched so that all students experienced the Holocaust and medicine seminar, reflective colloquium, and the group discussion on HeLa Cells.

Mixed methods evaluation of impact including quantitative and qualitative methods is in process.

C18. Physicians, Human Rights, and Civil Liberties: Lessons from the Holocaust: A two-hour session for second year medical students. Temerty Faculty of Medicine, University of Toronto. Dr Ariel Lefkowitz.

Learning Objectives:
- Examine the value of learning about and discussing the Holocaust
- By learning about the participation of physicians in the Holocaust, recognize how doctors can engage in unethical sterilization, torture, murder, genocide, or be silent in the face of unethical behaviour around them
- Identify discourse that contributes to gradual dehumanization and anonymization of patients
- Recognize how intergenerational trauma can play a role in the lived experience of patients and colleagues as a result of the Holocaust
- Engage with ethical dilemmas that stem from the Holocaust, for example in the treatment of marginalized groups and in human experimentation
- Learn approaches to individual and collective resistance against dehumanization, unethical behaviour, and genocide

Schedule and Content:
- One-hour lecture describing and analyzing:
  - The history of the Holocaust, and physicians' role in justifying, planning, and executing the genocide
  - Four lessons from the Holocaust, discussed in detail:
    - The implications of the Holocaust on the ethics of medical experimentation

• The concept of intergenerational trauma
• The consequences of dehumanizing discourse
• The imperative of moral courage, that we must fight unethical practices wherever we encounter them
○ Modern examples of physician atrocities and moral challenges in Canada and the United States
○ Anticipated moral challenges medical students may face on the wards
○ What can be done when faced with dehumanizing discourse and unethical behaviour in medical school
● One-hour interactive facilitated discussion with three panelists
○ Panelists are composed of:
• A psychiatrist who is a child of Holocaust survivors and works in clinical practice caring for victims of torture and other traumas
• A Holocaust survivor and educator who has been the subject of a number of films and educational modules about the Holocaust and is a frequent lecturer on sharing his experience and lessons from the Holocaust
• A physician who has received a humanitarian award for moral courage and for working with marginalized and underserved populations providing health care in challenging and sometimes dangerous environments
○ Each share about their lived experience as it relates to fighting dehumanizing discourse and unethical behaviour through moral courage, then the moderator facilitates a discussion drawing on questions from the audience

Accompanying reading:
● Physicians, Human Rights, and Civil Liberties: Lessons from the Holocaust E-Module, Temerty Faculty of Medicine, authored by Ariel Lefkowitz, Erika Abner, Shayna Kulman-Lipsey, Jordynn Klein, Jane Zhu, Ayelet Kuper

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Supplement D: Glossary and translation of German terms and abbreviations

Ahnenerbe = literally: ancestral heritage, an SS research organisation
Ältestenrat = Elder Council
Bundesgesetz zur Entschädigung für Opfer der nationalsozialistischen Verfolgung (Bundesentschädigungsgesetz, BEG) = Federal Act on Compensation for Victims of National Socialist Persecution (Federal Compensation Act, BEG)
Erbbestandsaufnahme = collection of biological data on families and communities
Erbkartei = hereditary inventory
Erb- und Rassenpflege = care for heredity and race
Führer = leader
Führerprinzip = according to this principle all relevant positions across the board were filled at the discretion of Hitler or his representatives and in a hierarchical manner
Gesetz gegen gefährliche Gewohnheitsverbrecher = Law against Dangerous Habitual Criminals
Gesetz zur Vereinheitlichung des Gesundheitswesens = Law for the Standardization of Health Care
Gesetz zur Verhütung erbkranken Nachwuchses = Law for the Prevention of Hereditarily Diseased Offspring
Gesetz zur Wiederherstellung des Berufsbeamtentums = Law for the Restoration of the Professional Civil Service
Gleichschaltung = authoritarian hierarchical consolidation of institutional powers on all levels of society
Heim ins Reich = 'Back home to the Reich' (Nazi slogan)
Jüdischer Geist= Jewish spirit
Kinderfachabteilungen = Children's special wards (euphemism for the killing units of the 'child euthanasia' programme)
Krankenbehandler = literally: treater of the sick
Kristallnacht = November Pogrom, on November 9-10, 1938
Lebensborn = literally: fount of life, SS organisation promoting increase of "Aryan" German population
Nationalsozialistische Volkswohlfahrt = National Socialist People's Welfare Organization
NS: *Nationalsozialismus* = National Socialism or Nazism
NSDAP: *Nationalsozialistische deutsche Arbeiterpartei* = National Socialist Workers' Party
NS-Schwesternschaft = Nazi Nurses Association
Nürnberger Gesetze = Nuremberg Race Laws
- *Gesetz zum Schutze des deutschen Blutes und der deutschen Ehre* = Law for the Protection of German Blood and German Honour
- *Reichsbürgergesetz* = Reich Citizenship Law

Ostjuden = Eastern European Jews
Rasse- und Siedlungshauptamt der SS = SS Race and Settlement Main Office
Rassenhygiene = race hygiene
Rassenschande = race defilement
Reich = empire
Reichsärzteordnung = Reich Physicians Ordinance
Reichsärztführer = Reich Physicians Leader
Reichshabilitationsordnung = decree on licence to teach at university
SA: *Sturmabteilung* = literally: storm division, paramilitary unit of the NSDAP
SS: *Schutzstaffel* = literally: protection squadron, SS elite paramilitary formation of the NSDAP
Sammelanstalten = transit institutions
Sonderaktion = special campaign
Volk = [German] people
Volkskörper = German national body, the metaphorical body of the [German] people in its entirety
Weltanschauung = an all-encompassing worldview
Wehrmacht = German Army

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