

A SOURCE OF INSPIRATION FOR HUMANISM IN MEDICINE

An interview with George L. Engel, by Eivind Meland, 1997

The University of Rochester in New York is well known for its clinical and research traditions and also for the priority it gives to patient centered medicine. In the curriculum of the medical school a strong emphasis is placed on communication, on patients' own experiences, and on their context and families. From research to clinic, there is interdisciplinary cooperation between teachers and students from different departments. This way of thinking influences the entire university as well as the School of Medicine and Dentistry. The person who has, more than any other, inspired and promoted the development of this approach is the internist and psychiatrist George Engel.

In the post-war period, George Engel was a highly regarded researcher, teacher and thinker at the University of Rochester. He is now professor emeritus in both internal medicine and psychiatry. This combination is an expression of the weight that is placed on interdisciplinary cooperation in Rochester. When Engel first arrived, the pathologist George Whipple was the dean at the medical faculty. The interdisciplinary emphasis of the university developed under his leadership with the slogan: 'We are all under the same roof'.

Famous teachers

George Engel is not a man to blow his own trumpet. He insists that it was a collective effort that made the medical school in Rochester special:

- George Whipple emphasized cooperation between the basic sciences and the clinic. We were under the same roof. The students were active in both research and clinical practice. Student and teacher were two ends of the same stick, and bedside teaching was emphasized, Engel says.

Our dean Whipple built on teaching traditions that William Osler, the founder of the modern medical school at Johns Hopkins had promoted.

- When I came here together with the psychiatrist John Romano, these traditions were further developed, and we were very keen to highlight communication with patients. Romano, who founded

the psychiatry department at the university, underlined the importance of developing patient centered medicine. But it is William Osler who should, in fact, be honored for this tradition with his important words: 'Your teacher is your patient'.

Engel met George Romano while they were both working at Harvard University: - Romano had a special gift for unfolding the patients' own histories. His bedside visits were very instructive experiences.

The advantages of biomedicine

Emanuel Libman, who first described and discovered Libman Sacks verrucae, was a distinguished teacher and model for his nephew, George Engel. In a personal interview (1) George Engel describes how his uncle's interests and advanced mastery of biomedical science influenced the Engel brothers. George and his twin brother later became doctors, and his elder brother, who was a biochemist, later became the head of the biomedical institute at Harvard School of Medicine.

- My uncle was unusually gifted and he taught me very much. He was biomedically oriented to the extreme, but I learned to value this tradition, and it enabled me to make comparisons with my own thoughts about medical science and clinical practice.

Engel points out that there were many contributions to the development of the research milieu at Rochester. When he and John Romano came to Rochester, it was accepted that the teaching of communication and patient oriented medicine should not be an enterprise exclusively for psychiatrists. After a short while this became an important element in the teaching of students and residents in specialist training for internal medicine, pediatrics and gynecology. Several generations of doctors later came back to Rochester and the district as practicing colleagues and some were employed at the medical school in Rochester.

- That is the reason why we have had a continuous tradition in this field for 50 years here.

Expanding the field of interest

Many of Dr. Engel's generation became interested in psychosomatic medicine. These doctors learned that it was also necessary to expand their field of interest to embrace verbal communication and

subjective experience. Engel illustrates his point with a story from his time as a young researcher in Cincinnati. The research program aimed to find preventive actions for altitude decompression sickness ("the bends"). The researchers were equipped with every device available to high-tech medicine at the time, and Engel, who also served as a research object, well remembers how they simulated flights in a decompression tank with needles and all kinds of apparatus strapped to their bodies. The researchers collected an ocean full of data without finding any relevant answers to their research objectives. Finally, their project leader encouraged them to think scientifically, but in a different way.

- As Engel recalls it-He said: 'We are clinicians, but why in hell' - I think he used the word hell - 'are we behaving like physicists or chemists? What would we have done as clinicians if a patient came to us and complained about the same symptoms? Of course we would have asked him more, and after a thorough talk we would have made a complete physical. So let's do that! George, you take the lead on this for the next few weeks!' After some days Joe, a research companion, was asked to read the manometer and he refused, saying that some kind of curse was connected with the manometer because every time he read it he got the bends! Anyway, he read the manometer in spite of his misgivings - and of course, he got the bends!

Then our group ran a study where everybody in the decompression chamber had to perform exactly the same movements as Joe had. They had to squat down as Joe did and the incidence of the bends increased from the mean 30% to 100%.

The point is that Joe's verbal data, his communication, was the most important information, the most important single data item we had. We have to admit that communication is an essential source of scientific understanding, says George Engel.

Biopsychosocial medicine

Biopsychosocial medicine is the 'brand name' of the novel orientation within medical practice and science that Engel has promoted. He introduced the concept in a famous paper in the journal *Science* in 1977 (2), where he used von Bertalanffy's general systems theory to explain the changes in medical cognition and practice that he considered were necessary.

- Does biopsychosocial medicine mean the same as incorporating psychosocial factors in biomedical cognition?

- I started to use this concept of biopsychosocial medicine by accident, really. With hindsight, I would never have introduced it because it promoted the misunderstanding that you express. The fact was that the referees in Science who reviewed my paper were either skeptical or negative. One of them was more positive than the others and I made the most of his recommendations when he said that I could not only critique the status of biomedical enterprise, but I had to have a name for the alternative that I introduced. He proposed the concept and, unfortunately, I did not consider it thoroughly enough.

Doctor Engel is clear that the difference is much more fundamental, and he has described it thoroughly in several papers (3,4). Today he compares the tradition of biomedical science with the tradition of science that had absolute power in the 17th century.

- The change in scientific cognition was already introduced by Charles Darwin who clearly saw that every living system was interconnected. Later came the revolution in physics, and Albert Einstein's cognition that experiment and experimenter could never be disconnected and independent. The changes that quantum mechanics and irreversible thermodynamics introduced have verified and confirmed this. These changes are encompassed in my concept: biopsychosocial medicine.

Doctor Engel does not, however, consider biomedicine as inferior and something that has to be discarded: - Einstein said that Isaac Newton's mechanics were supreme for some purposes. His metaphor was that it was like mounting some foothills on a foggy day. When you reach the top and the clouds disappear, you experience that you are on the top of some foothills in a mountain range. Norway and Switzerland are beautiful places!

The experience of mounting the first hilltops is not worthless. Biomedicine is outstanding for some purposes, and you don't need quantum mechanics to build a bridge, Engel says.

- My opinion of Einstein's statement is that he emphasizes humility in science.

- Yes, but Max Planck was more cynical. He said that old traditions and views in science could not develop until the old scientists and their students were all buried. The development here in

Rochester shows that Planck was wrong. It is possible to promote a new scientific and clinical culture if the milieu, the climate and the stability promote new cognition.

George Engel points out how the culture at Rochester, characterized by equality, equal worth, interdisciplinary cooperation, social interaction, scientific interaction and the interactions at bedside visits, stimulated these changes.

- It might be nurses with interests in research activities that promoted and contributed important information at lunch or social meetings. The research fellows at internal medicine departments had different clinical backgrounds, but they did research together, and had clinical encounters together. Clinicians educated in this way later became faculty members here. We needed this stability to promote the teaching of communication skills with the use of audio tapes and later video tapes, where teacher and student sat down together to further develop their skills.

- Personally I feel a cultural distaste that I might describe as medicalization of people's everyday life and an increasing expectation that medicine should solve any problem. Would not the biopsychosocial concept in medicine further contribute to this increasing expectation from people?

- On the contrary! The biopsychosocial concept does not mean that medicine has to expand to any other field or contribute with illusions that it can solve any problem. It is about understanding the perspectives of patients, but also enabling patients to solve their own problems, if possible, Engel answers.

A doctor might help them with this, but the most qualified may also be a physiotherapist, a lawyer, or a priest. The biopsychosocial concept in medicine is also about limits and boundaries in medicine.

It has not, however, always been plain sailing for Engel and his companions at Rochester School of Medicine and Dentistry. At the beginning of the '70s, he had to negotiate with and calm students who protested against a threat to close down the teaching of communication skills at the school. Training in communication continued, however, and is now an important and integrated part of the curriculum for all students at the medical school from the first day.

References

1. Morse DS. A family-oriented interview with George Engel.
Families, Systems & Health 1996; 14: 413-24.
2. Engel GL. The need for a new medical model: A challenge for biomedicine.
Science 1977; 196: 129-36.
3. Engel GL. From biomedical to biopsychosocial. I: Being scientific in the human domain. Families, Systems & Health 1996; 14: 425-33.
4. Engel GL. Foreword. In: Foss L, Rothenberg K. The second medical revolution.
Boston New Science Library: 1988.

Eivind Meland

Department of Global Public Health and Primary Care

Kalfarveien 31

5018 Bergen

The interview was first published in The Journal of the Norwegian Medical Association:

Meland E. En inspirasjonskilde til humanism i medisinen [A source of inspiration for humanism in medicine]. Tidskr Nor Lægeforen 1997;117:568-9.