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Informed Perspectives

A discussion with Dr. Christof Kastner

Dr. Christof Kastner is a Urologist at Cambridge University Hospitals. He's an expert in prostate cancer and specializes in prostate diagnosis using imaging.

Q: Why is standardization important?

Dr. Kastner: Using that technology, it is very important that certain processes are standardized. So standardization is a crucial element of looking at your own data and excluding other factors, which may have influenced them. Also, we work in a large tertiary referral center that truthfully, many trainees around and trainees come with lesser skill. We train them up and they go away, again, at the top of their skill. Then, we have a certain swinging performance. We need to minimize that swinging performance by introducing standards. This may be very well said if you have a human involvement in the training of the trainees, but you can also have technology supporting the standardization and allowing the trainees to get some feedback once they're doing it. Technologies can guide anybody along a certain standard, so they're as close as possible to the expert.

The technology can help me in specific in prostate cancer management. We can identify how our operational pathways work best with timings, but also, if you go further, the standardization of imaging like MRI – the reading of the MRI and then the application of such imaging when biopsies of the prostate are being taken, that can standardize and guide anybody to a certain target, which can be taken during the biopsy. Also, the operational process of the biopsy then is standardized by the technology, and is less effected by random action of an operator.

Q: How do you see AI supporting oncologist's work?

Dr. Kastner: It is quite interesting to look at the combination of artificial intelligence, data, and then also pathway management to minimize deviation and different types of practices. For me, it is actually quite interesting to prove the value of such decision making, one, with artificial intelligence interpreting as an aid rather than anything, but then also in the decision making. My strong belief is that if we add value to a pathway, we don't only add value to the patient and the outcomes, but also value to the costs.

If you take the example of MRI in prostate cancer diagnostics, it is certainly well established and we have shown that, in our own practice, that despite the fact that we are now doing around 500 to 700 MRIs, in contrast to zero in 2010, despite those added costs with those MRIs, we can reduce the number of biopsies we are taking. We're saving 40% of biopsies. Not only is that a saving in monetary terms, it's also a saving of patients side effects. It's a saving of further investigations downstream. When, in olden days, investigations would have missed something. We diagnose much earlier, and you go then further, you have a better diagnosis, more accurate diagnosis, and treatments are more accurate. The outcomes of the treatments are more accurate. You have less side effects. This converts in obviously a patient's outcomes, but also costs for the health system. This is what I strongly believe in. That is value–based care, where all this data actually comes in and benefits everybody. It's a win, win, win. If it's set up properly, and that is the crucial problem, if we set it up and it all talks to each other it is a dream scenario.

Q: What barriers does AI face in Oncology?

Dr. Kastner: So it is a system problem, which stops us, and it will be difficult without using one solution to achieve that, but you will never get a system buying into one solution. There will also always be different providers for different parts of the IT system, so compatibility and talking to each other of the systems is key for any of this.

It is an introduction of a culture which will take time. It will take five or 10 years at least, if not longer, to slowly come through. Hospitals like Addenbrooke's already have started and embarked on that and have engaged with a single high quality IT system to do that. There is a good start, but it will take time. It is convincing people to turn.

Q: How do you deliver a Precision Diagnosis?

Dr. Kastner: When we come into more detail about diagnostics, the precision is key. Early diagnosis and being very targeted minimizes the impact of a health system onto the patient, so precision diagnosis is what we are practicing. We are trying to identify the patients at an early point who need further investigations. We use these investigations to select the patients if they need a subsequent, further test. If they need that test, we want this test to be very accurate, very targeted.

Q: What is the future of healthcare?

Dr. Kastner: Healthcare in the future will be very much dependent on technology. It is the quality which is provided by data. It is provided by automated interpretation of that data, automated monitoring of our own practice, which then feed us and the patient with the information which we need to make the right decision. It can't be that only this high quality service is available in expert centers, we do need to push out quality into the community. To me, a healthcare service will have diagnostic hubs, assessment hubs of high quality out near the patients.

The patients can be assessed near their home to a high quality standardized way. You can have experts even from further away using that information by communication with the patients, by a remote consultation, or face-to-face terms to get the patient the best care they can receive, so it doesn't depend on a patient living remotely away from tertiary, expert centers. This is what I believe healthcare should look like, and this is all based on the technology. To be honest, this has been accelerated through the COVID times in recent months.

Q: How can technology improve patient pathways?

Dr. Kastner: In the pathway of patients, we have a certain complexities which are relating to decision making, bringing information together, and also, monitoring and maintaining a patient's journey afterwards. If you take the multidisciplinary team meeting, an expert meeting where the information is being reviewed and decisions are being made, this would best be on a platform, which allows the clinicians to communicate with that information and communicate with each other, and the output is also being documented for the patient to be seen. This brings all of the information together at one point to optimize the decision making, to standardize the decision making, and also to make it transparent for the patient.

The further point of the journey, which is very complex, is the patient's decision making, which is then the next step. You take the information from that multidisciplinary team meeting to the patient. Now, you can do that in person, you can do that in the classic way of a clinician talking to the patient, but you could also do that by providing all that information to the patient in the form of a patient portal or something similar. This can be accessible to the patient from the outside world. The patient can have access to his own information with bank account security type of access, and the patient can see that information. Artificial intelligence could provide the patient with analysis and answers to certain questions, even without a clinician involved.

What could then happen would be that also the patient could coordinate their own decision making and health management by accessing different experts, which are proposed or involved and offered to him on such a website. A complex decision exercise could be optimized by putting the patient into the center of the decision making using technology.

Q: What is the biggest challenge in healthcare?

Dr. Kastner: The biggest challenge in healthcare is introducing a culture of transparency. The culture where the team and the team working is more important to achieve the result than the individual itself, and the individual works as part of the team for the benefit of the patient. This can only be done by a transparent assessment of your own practice.

There are challenges in change. One of the biggest challenge is introducing a transparent culture in healthcare to achieve the best outcomes as a team, and not as individuals. As individuals, we all will not perform as well as a team and changing people's minds to trying to achieve glory as a team and not glory as individuals would be key to a better healthcare.

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