The three core problems of science journalism - and a couple of tentative solutions

"I speak to too many unprepared journalists on the phone. That means I have to start with Adam and Eve and we usually never get to explore the nuances. Instead we use the whole interview going over the basics."

That quote is from Jakob Giehm Mikkelsen, a Danish professor in genetics at Aarhus University. He's not the only researcher I have interviewed, who has this kind of experience. Many tell a similar story.
During the last 20 years science has moved from sections dedicated solely to science to appear in everyday news.[1] That move could be one explanation for why the researchers feel as described above. Furthermore science used to be covered only by elite newspapers like *Politiken*, *Weekendavisen* and *Jyllands Posten*, but today all the tabloid media and websites write science stories as well.[2] This means that journalists not schooled in science pick up the phone and call the researchers, which in turn creates a lot of frustration - and sometimes mistrust between journalists and scientists. To me this illustrates two of the core problems of science journalism today:

- A lack of time in the newsrooms to do proper science journalism (with nuances)
- Growing distrust between journalists and researchers

I'll get back to my ideas on how to try to solve those two issues, but first I'll identify the rest of the challenges for science journalism. Asked about the status of science journalism today, Gunver L. Vestergaard, who wrote a ph.d. about the subject in 2016 and works as a science journalist for *Weekendavisen*, reflects that "*we have a lot of stories about science in the media, but very little real and critical science journalism. And that is a problem for society.*"
In 2016 Gunver L. Vestergård made a large quantitative study about who publishes science journalism and how it's made. As mentioned earlier she found that more and more outlets are making science related stories, but it's taking a toll on quality. According to her research 90 percent of the science stories in Danish media are uncritical.[3] They have no oppositional science views and are focused on telling about new and surprising results, rather than telling about the slow incremental steps of science. This is the third core problem for science journalism:

- Lack of critical stories

These three core problems result in science stories that are focused on "extraordinary" results - rather than scientific consensus. It results in most stories being "new research shows"-stories, rather than stories where journalists dig deeper into the theme telling about the scientific disagreements, methodological weaknesses and the competition for funding that leads to these kinds of results. And it results in stories with the same well-proven experts, while others shy away from the media because of bad experiences with journalists.

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[1] Where does science news come from?: An industrial PhD thesis on the ecosystem of science news, Gunver Lystbæk Vestergaard, 2016.
[2] Ibid.
[3] Ibid.

When it comes to my area of interest - the coverage of new medical technology - these problems seem to be similar. One of the problems - the time issue - is something I have experienced in my own newsroom. At DR Viden we went from writing maybe 2 stories a week per journalist to writing 4-5 stories. Even though we were a team of experienced science journalists the stories changed into less perspective and background and more "new research shows"-stories. We did more stories based on press releases, and less stories born out of our own reflections. You could ask the question - is that a problem? Well, according to Gunver L. Vestergård when we journalists do the "new research shows"-stories we tend to be less critical. "*Most of those stories come straight from the science journals or the growing communication departments at the universities. When the journalist has no time to do basic journalistic research and dig just a little deeper to tell the larger story, the articles become more or less advertising for science",* she says.
The lack of time results in at least two problems: less critical stories and stories focused only on the applicability of the research. The last problem is especially prevalent when it comes to the coverage of health and medical research. Take this story for example: "*Ny behandling: Forskere kurerer kvinde for HIV*" published in *Ekstra Bladet* february 19th 2022.[4] The story tells of one woman who was cured from HIV by getting stem cells from a person with a mutation that renders him immune to the disease. That is of course fascinating, but the story doesn't tell us anything about how many people would be eligible for this treatment, if the treatment is intrusive and what it would cost. Are there any downsides to the treatment? Do we have better and more cost-effective treatments? All these nuances are lost and the only mention about the future of the treatment in the story is the paragraph: "...it might be a future cure, says experts". When stories about science are written this way, the reader doesn't learn anything about science. Actually I would argue, he gets a dumber. Science is not based on case-studies like this. It's based on rigorously testing a new treatment on thousands of people over several years, before it's deemed safe and effective enough to be implemented. But how would the reader know that, if this is all he's confronted with?
So what is the solution here? Well, first of all - and it's easy to say in a media landscape where clicks equals money - less but better stories about science could be the solution. As Gunver L. Vestergård showed in her research, 4% of all news stories in Denmark are about science. The market for science news is - in her words - already saturated. Maybe it would be more beneficial for the media to give journalists more time to do a more thorough story with more sources and more nuances. It could even be good for business. My experience is that some of the most rigorous stories about science that I've made works well as so-called long tail content. The stories might not explode with clicks when published, but they keep getting clicks year after year, because the content doesn't get obsolete. The longtail traffic is not something that editors are measuring or working towards. And I think that's a shame because these stories create more value for the audience.

On to the second problem for science journalism - the trust issue. When DR in May 2022 broadcast the tv-show "Ellen imellem" a debate about how journalists treat researchers quickly arose.[5] The researchers complained that they didn't know the terms of the interview that they participated in. They weren't told that the journalist interviewing them had a conspiracy theorist sitting in another room dictating the questions through an earpiece.

[4] https://ekstrabladet.dk/nyheder/videnskab/ny-behandling-forskere-kurerer-kvinde-for-hiv/9135343
[5] https://videnskab.dk/kultur-samfund/dr-undergraver-forskningens-trovaerdighed-i-nyt-program

Formats like this erode the trust between journalists and researchers. As Morten Dewald Drøgemüller Hansen (Morten DD), a much used biologist from Naturhistorisk Museum said: "*Hey DR, don't bother calling me again*".[6] In my view "Ellen imellem" was just one case showing the growing divide between journalists and researchers. A divide which might be growing because more journalists are calling up the researchers without knowing them or knowing anything about science. These journalists (sometimes me as well) often think that their own deadline is the most important thing in the world, not realizing that researchers have deadlines too. "*Journalists might have short deadlines, but I also have stuff to do. I also have deadlines and sometimes I don't feel that journalists understand that. They expect me to skip all plans and just help them. That doesn't exactly create trust",* says Jakob Giehm Mikkelsen.
The lack of trust has, according to him, become a problem because both journalists and researchers know too little about each other. To him the experience is completely different, when he speaks to a journalist he knows, respects and has talked to many times before. *"It might sound simple, but it is all about creating good relations. With a good relationship comes trust and understanding*", he says. The solution is therefore obvious to him: Journalists and researchers should meet each other more often. Not just in an interview situation but on more neutral grounds. Meeting up and talking without a specific story in mind could be a solution, he reflects. He's of course aware that both journalists and researchers seldom have the time to do that.
It is my experience as well that building up relationships with researchers is valuable, but it takes time. I have prioritized going to conferences and other events where meeting the researchers is possible. Where you can "shoot the breeze" without necessarily needing an interview from the researchers. But maybe newsrooms - who talk a lot with researchers - should be better at either inviting the researchers to come visit them or visiting the universities. Today most written science journalism and radio is produced by picking up the phone never actually visiting your sources at the research institutions. By showing up physically might do a lot in creating trust as well. Or conducting interviews over teams or zoom might do the trick as well.

The last and maybe the biggest problem for science journalism in general - and the medical technology and health beat more specifically - is the lack of critical stories. When writing my master's thesis ten years ago, I looked into how many of the stories on the DR TV-program "Viden om" could be considered critical. The result matches Gunver L. Vestergårds research. Most of the stories used only one researcher as a source, they focused on fascination and applicability and seldom asked critical questions like "how sure can we be of this?" or "is there scientific consensus on this issue". That was on DRs flagship science show at that time.
So why is it that so few of the stories are critical? Is it a lack of time? Is it too difficult for journalists to understand complex research issues? Or is it lack of interest? Well, maybe the answer is a mixture of all these reasons. According to Gunver L. Vestergård journalists specialized in science are partly to blame. "*We science journalists tend to love and believe so much in science that we sometimes forget to get critical*", she says. "*When our stories do not rise above these "new research shows"-angles, some editors can't see the value in specialized science journalists."* In other words, science journalists sometimes lack the interest of writing critical behind-the-scenes stories. We are sometimes so fascinated by

[6] https://nyheder.tv2.dk/samfund/2022-05-23-forhenvaerende-naturvaert-boykotter-dr-efter-forskersag

science that we just want to share our fascination with the rest of society. But that is a problem, explains Gunver L. Vestergård, because then we sometimes end up being science communicators and not journalists.
At the University of Copenhagen the central department of communication has grown from 17 to 22 people in just eight years (from 2007-2015, which are the latest numbers available).[7] And that is just a little part of the university. Overall around 111 people (in 2016) are employed at the university doing communication. That is probably more people than all the science journalists in the Danish media combined. And that is just at one of the country's eight universities.[8] For Gunver L. Vestergård this is a huge problem. The communication people at the universities - often former journalists themselves - produce a lot of good and fascinating stories not just for the science journalists but for all journalists to grab and publish. And they know that fascination and the spectacular sells. Which makes it harder for the remaining science journalists to do other types of stories. It is tempting for the media to grab these stories, give the researcher behind the results a call, write up the story and call it a day. Finding another researcher with the exact same research specialization is both time demanding and sometimes impossible - unless you look outside the borders of Denmark. Furthermore the other researcher seldom has time to look through the scientific paper the same day to be able to comment on it. But often the journalist has a deadline at the end of the day. This is a problem I've faced countless times. And I think it is one the most important reasons why a lot of science coverage in Denmark is based only on one source. It's simply time demanding to do otherwise.
But is it really a problem that the only source used is the researcher behind the results? The research being covered has already been peer reviewed, right? Well, yes, most of the time it has. But science isn't about facts but probabilities. It's about interpretation of data. And there might be other ways to interpret the results. As with all humans, whether you're a journalist, doctor or politician, researchers are biased. The scientific method is all about trying to get rid of that bias, but it's impossible to completely cut it away. Therefore it is important to have a second opinion. A neutral look at the results.
I argue that it should be part of the routine of the journalist, when writing about science, to always ask a second source. It will illuminate if there are different ways of seeing the world in that particular research area - and it helps the journalist to establish the reputation of the researcher in question. Often when I do this my stories tend to change direction. I sometimes find that there are other parts of the story that are more interesting. When there is scientific disagreement about something, a debated methodology or maybe the breakthroughs of the past that led to these news findings is a better story.

Another huge problem for science journalism - especially when journalists not used to covering science do them - is the lack of understanding of the scientific methods. Often the communication people at the university try to overstate the importance of the research to sell the story. If you aren't trained in the pyramid of evidence it can be hard to assess whether the new results are significant. The pyramid shows which kinds of studies that have the most significance in the scientific world with meta analysis or reviews at the top. Meta-analysis looks at all or most of the previous research on a topic and statistically calculates based on all the data, what is the most probable result. Often these studies aren't covered because they don't bring anything new or spectacular to the table. They just enforce or correct what

[7] https://uniavisen.dk/ku-bruger-to-milliarder-om-aaret-paa-administratorer/
[8] https://dkuni.dk/om-os/de-8-universiteter/

we already know. Videnskab.dk made an excellent guide to the pyramid of evidence - with a case about the effect of face masks. This guide is a great tool for journalists covering science. The pyramid can be a powerful tool in the process of choosing which stories to write or not. If the research is on the lower levels on the pyramid it's probably not worth writing about. The pyramid will also help the journalist being critical when interviewing the researcher behind the results. The lower it's on the pyramid the more critical questions about the probability of the research the journalist should ask.

A final and also excellent tool to help journalists be more critical when covering science is also made by videnskab.dk. They made an excellent guide of 11 things to be aware of when covering science. I won't go through the guide, but there are some very good tips in there - especially for journalists not used to covering science.

Conclusion

DR has cut severely down on science coverage.[9] *Jyllands Posten* haven't got a science desk anymore. The same can be said for *Politiken*. Weekendavisen, *Information* and *Videnskab.dk* - which are niche media - are the only ones that have a serious coverage of science. *Illustreret Videnskab* is in my opinion writing science stories that focus primarily on fascination - which is not critical journalism. And Zetland doesn't really cover the natural sciences. There is, in my opinion, a lack of good, nuanced, critical and well balanced science journalism. And here's the main reasons for that:

- The coverage of science is not prioritized in omnibus media
- There's a lack of time in the newsrooms to do proper science journalism
- Distrust between journalists and researchers is growing

These are the core issues of science journalism in Denmark that I have tried to identify. But of course there are more problems that I could have addressed - for example the news criteria for science journalism. Science is a global endeavor, which means that the amount of new research and possible stories is staggering. We can only write a few each week - but which ones should we choose? The spectacular, fascinating and sensational ones? The important ones? When my colleagues and I choose which stories to write, we often discuss which ones the readers might be interested in and want to click on - you could call it the potential for traffic. This potential often comes before the importance of the story for society and the individual. Furthermore, I have chosen not to write a lot of stories about math and artificial intelligence, because I think it's too difficult to communicate, and because I'm not really interested in it. Science journalism is as I see it highly interest-driven - and therefore I think the coverage depends more on the interest of the individual journalist than a holistic approach where the most important stories are chosen. Third but not least science journalism is, as many other types of journalism, marred by click-baiting. In the constant battle for attention on social media, click baiting is a way to capture the attention and generate more clicks. And it works. Why else would almost every media house in Denmark be doing it to a greater or lesser extent? Even at DR - where we are so focused on the ethics of journalism - we do it sometimes. One potentially dangerous consequence of this is that people get disappointed, because we try to sell the story as something it is not. This might lead to news-avoidance in the long run, because the audience feel tricked by the media.

[9] https://videnskab.dk/kultur-samfund/dr-undergraver-forskningens-trovaerdighed-i-nyt-program

Another dangerous consequence is that people might only read the headline and the comments. This might lead to wrong ideas about science, because they don't read the nuances included further down in the text. These three issues could be pursued further, but I'm only mentioning them here to show that my list of core problems in science journalism is in no way complete.

Okay, so there's a lot of problems, but there are also solutions. They are mentioned in the text above with more content, so here's a brief list of my learnings and recommendations for other journalists working with science-content.

1. Not enough time: Focus less on the amount of clicks on the publication day. Look instead at long-tail content. Stories that keep generating traffic month after month. When you have identified that kind of story you have an idea of which kind of content you should be creating. By showing these statistics you might even be able to convince your editor to give you more time to do fewer stories.

2. Distrust from researchers: Trust is built if you get to know people. Put your phone back in your pocket, go to the university and interview the researchers in person. This will create a different kind of relationship. If that's not possible, try to use Zoom. Go to conferences and other events, where you can talk to your sources without needing them for a concrete story. And be transparent to them in all you do - both before, during and after the story is published.

3. Lack of critical stories: Always use a second source when writing about new research. Memorize the pyramid of evidence. Remember that science is not necessarily the truth - it's about the probability of something being true.