A Career in Scientific Consulting and Medical Communications

“Leaving the bench, but keeping the science”

Matthew Hoelzle, PhD
Scientific Director
Articulate Science
Penn Career Fair
Transitioning From the Bench
My Grad School Experience

- **Classes**
  - Cell600, etc.

- **Teaching**
  - Cancer cell biology 407, undergrad labs for intro bio, Bio202

- **Research**
  - Tatyana Sviktina’s lab – The cytoskeletal mechanisms of cell–cell junction formation

- **Is the bench for me?**
My Grad School Experience: The Scientific Method
My Grad School Experience: The Scientific Method

Observation, question, research, develop hypothesis

Conclusion (model)

Experiment

Data (results)

So where is the science in scientific communications?
The Scientific Method in SciComs

- **Observation**: question, research, develop hypothesis
- **Experiment**: (model)
- **Data (results)**
- **Conclusion**

[Diagram showing a cycle involving observation, experiment, data, and conclusion.]
Scientific Communications: Internal, Freelance, and Agencies
Opportunities in the Medical Writing Field

- Where do medical writers work?
  - Pharmaceutical companies (in-house)
  - Contract research organizations
  - Freelance writers
  - Academic medical centers
  - Associations (e.g. American Lung Association)
  - Publishers (journals and textbooks)
  - Websites
  - Magazines
Nucleus Global: Full Spectrum of Services

#1 Largest independent global medical communications group

30 Years old! Founded in 1986

> 90% Editorial

> 50% Client Services qualified to MSc, PhD, or MD level and/or Pharma experience

100% Full in-house service offering

> 640 Staff worldwide

11 Strategically placed offices

Atlanta | Hamilton | San Francisco | Chicago | Warren
Basel | London | Manchester | Shanghai | Singapore | Sydney
Our In-house Offerings Span the Product Lifecycle With Science at Our Core

- MOD / MOA animations
- iPad tools
- Website development
- Dosing apps
- LMS training system
- Video development
- Podcasts

- Message and competitive workshops
- Advisory boards
- Lifecycle management
- Strategic consulting
- Clinical trial branding

- Mapping
- Communications strategy
- Engagement plan
- Optimization

- Speaker identification, contracting and training
- Speaker bureau branding and management
- Content development
- Live and digital meetings

- Training content and meetings
- Sales aids
- Reprint carriers
- Launch planning
- Competitive training

- Expert / KOL Strategy
- Digital
- Congress Support
- Full-service in-house agency support

- Symposia
- Congress coverage
- Debrief sessions
- Exhibit booth displays
A Good Medical Communicator

- Understand the product, audience, and the client
- Be aware of and uphold industry standards and guidelines
- Be acutely aware of their moral and ethical duty for responsible medical communications supported by data
  - The work affects clinical practice
Typical Day For a Medical Writer

Every day is different and involves a mix of the following:

- **Research**
  - PubMed
  - Congress Proceedings (including attendance)
  - Web searches

- **Writing & production of:**
  - Abstracts, posters, manuscripts (primary, review)
  - Educational/training materials
  - Mechanism of action sequences

- **Meetings**
  - Internal team meetings
  - Project specific meetings
  - Clients and medical experts (TC, face-to-face)
Publications Support

Risk estimation for hepatocellular carcinoma in chronic hepatitis B (REACH-B): development and validation of a predictive score

Efficacy and Safety of Entecavir Versus Adefovir in Chronic Hepatitis B Patients with Evidence of Hepatic Decompensation

Triple-class HIV antiretroviral therapy failure in an Australian primary care setting
Tumor-Vascular Disrupting Agents (Tumor-VDAs): The mechanism of action

1. Disruption of Tumor Vasculature
   - The tumor vasculature with its unique features represents an attractive and innovative target for effective and selective cancer treatment. Tumor-VDAs selectively disrupt established tumor blood vessels and inhibit tumor blood flow via a dual mechanism of action, comprising direct and indirect anti-vascular activity. The vascular damage and the intumoral vasovasostatic cascade induced by Tumor-VDAs cause inhibition of tumor blood flow.

2. Inhibition of Tumor Blood Flow
   - Pre-clinical models have shown that Tumor-VDAs are particularly effective at inducing necrosis in the large internal regions of the tumor.

3. Extensive Tumor Necrosis
   - Standard chemotherapy is more active against cells that are highly proliferative and proliferating, such as those found at the periphery of the tumor.

4. Enhanced anti-tumor immunity
   - Tumor-VDAs disrupt tumor vasculature and inhibition of tumor blood flow upstream of tumor cells, leading to extensive tumor necrosis.

With their unique mechanism of action, Tumor-VDAs provide an innovative approach to anticancer therapy.
Patient Education
Interactive Learning

Fluorescein Angiography

Fluorescein angiography is used to image the structure and function of the retinal microvasculature in patients with suspected or confirmed diabetic retinopathy. Fluorescein angiography is not routinely included in eye exams for diabetes patients, but it is usually used in the assessment of clinically significant diabetic macular edema.

Quick Tips
- It is normal to have no vessels visible in the foveal (central foveal avascular zone).
- Patients may experience transient sensations of metallic taste, mild nausea, and warmth after dye injection; patients should be advised that their vision may be blunted up to 12 hours after the procedure.
- Hypersensitivity to the dye is rare, but nausea, vomiting, dizziness, urticaria, headache, and anaphylactic reactions can occur.

Floating Spots in Vision

Floating spots in vision, theories of light, clouds existing in front of the eyes are on the result of tiny clumps of gel in retinae the vitreous. These “floaters” are actually the result of shadows cast on a retina and may be symptoms of retinal hemorrhage, retinal detachment, another related condition associated with diabetic retinopathy.

Quick Tips
- Floaters could indicate a serious condition such as diabetic retinopathy, retinal hemorrhage, and the beginning of a retinal detachment.
- Patients experiencing floating spots in vision should receive prompt ophthalmologic evaluation.
- Adults with type 1 diabetes should receive a comprehensive eye exam by an ophthalmologist within 6 years after the onset of diabetes.
- Patients with type 2 diabetes should have a comprehensive eye exam by an ophthalmologist shortly after the diagnosis of diabetes.
Augmented Reality and Other Innovations

- Augmented reality
- Strategic commentaries
- KOL virtual roundtable
- Interactive Q&A
- E-articles
- Webcasts
Benefits and Challenges
Benefits of SciCom

- *You get away from the bench*
- Still involved in the science
- Interesting work that is easier to describe at Thanksgiving
- High demand
- Pays well
- Travel
Challenges of SciCom

- *You get away from the bench*
- Focused on data that isn’t your own
- Not all agencies are created equal
- Business awareness
- Credit is not yours
- Challenging the client
- Deadlines
- Travel (?)
Breaking into Medical Writing

- Is your research clinically based?
- Take a lead role in writing grants/reviews
- Take a course
- Do some research online (www.AMWA.org)
- Randomly walk into a career fair with absolutely no idea of what you’re doing (example: Me)

- PS. If you get an interview, write a resume/CV that is well organized with no writing errors
Questions