

Article

Bioenterprise Media Strategy 2020: Social Media, Mainstream Coverage, and a New Model of Trust

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ABSTRACT

In 2012 and 2016, the first two strategic science-business media models were published (SBBMM 1.0 and 2.0). Since that time, there have been significant changes both to the media landscape and to the usage and capability of online and social media platforms. This paper seeks to describe the current bioindustry-relevant media landscape, to introduce a new media model, the Strategic Bioenterprise Media Model 2020 (SBMM 2020), which reflects this new landscape, and to present a mainstream submodel to support the latest opportunity for biotechnology media coverage: Mainstream Media. Examples are drawn from media coverage following the FDA approvals of Zulresso from Sage Therapeutics, Aimovig from Novartis and Amgen, and AquAdvantage salmon from AquAdvantage Technologies. The overall goal of this paper is to equip bioenterprise professionals with an understanding of media dynamics and the strategic potential it brings, ultimately contributing to bioenterprise success.

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INTRODUCTION

MEDIA STRATEGY FOR any business is a two-part plan: elicit positive media, and counter negative media. While simple in concept, the media strategy for a bioenterprise is not. It starts with identifying the intrinsic risk of the organization, as media is inclined to cover risk – the risk that paid off, the risk that failed, and events of interest while waiting to see which one it will be. This is especially significant since for every biobusiness, the risk is constant and dynamic, and the proposition that the science will bear out and the technology will ultimately work is its driving impetus. As such, the bioenterprise was characterized in a 2013 Journal of Commercial Biotechnology article as follows:

“The unique nature of the life science industry has been aptly described as ‘science-business’. As such, the endeavor carries innate risk. Simply stated, the bioenterprise must drive nascent science to stable, commercially-available and ultimately profitable products and services, an

exercise for which success can neither be predicted from the outset, nor at numerous points along the way. Achieving commercial success requires a multi-disciplinary and creative entrepreneurial organization, which can operate within a continually challenging and unprecedented business context. This holds true across all biotechnology market sectors.”^{1,2}

But the central question remains: how does risk and media coverage come together to contribute to the success or failure of a bioenterprise? The simplest answer is funding. Substantial and repeated tranches of funds are necessary to bring a product to market. Certainly, the biopharmaceuticals sector presents the greatest funding challenge. Expressed in 2013 dollars, the Tufts Center for the Study of Drug Development 2016 report combines “the cost of compounds abandoned during test ... [with] the costs of compounds that obtained marketing approval” to estimate the cost for a single biopharmaceutical to be \$1.3 Billion over 12-15 years³. This number rises to \$2.6 Billion when the bioenterprise needs to

capitalize these costs with funds from external sources, the most typical scenario³.

This paper seeks (1) to describe the current bioindustry-relevant media landscape, (2) to introduce a new media model, the Strategic Bioenterprise Media Model 2020 (SBMM 2020), which reflects this new landscape, and (3) to present a mainstream submodel to describe the latest opportunity for biotechnology media coverage: Mainstream Media. The overall goal of this paper is to equip bioenterprise professionals with an understanding of media dynamics and the strategic potential it brings, ultimately contributing to bioenterprise success.

THE EMERGENCE OF BIOSTRATEGIC MEDIA MODELS

The first strategic media model for the bioenterprise, now referenced as SSBMM 1.0, was published in this journal in 2012⁴. At that time, the biotechnology industry drew interest from bioindustry-only publications, perhaps best described as “trade press”, and financial market coverage. The latter would be general financial market publications, business-oriented television and radio programming, and the finance sections of general audience media. Coverage focused primarily on publicly-traded stocks, mergers and acquisitions, and major capital funding events.

At that time, online-only media outlets of all types were beginning to emerge. In the bioindustry space, individuals began publishing without benefit of editors or editorial policies. This included independent industry analysts, biobusiness journalists, veteran biotechnology stock traders, consultants, and anyone with online access, since the tools to publish blogs, podcasts and materials from any venue had become plentiful and free.

Core to the 2012 media model was distinguishing between professional and non-professional media outlets, as well as the efforts needed to ensure the most accurate representation of the bioenterprise. The 2016 model (SSBMM 2.0) added the consideration of life science industry reports and databases that might improperly impact the perception of a bioenterprise, its product(s) and/or the geographic region(s) in which it operated⁵.

Since that time, technology has evolved. Now, 24/7 access to media via smartphone is routinely expected, more and more biotechnology products have come to market, and more people in the general audience have felt their impact.

MEDIA OUTLET CATEGORIES AND AUDIENCE REACH

For the purposes of this paper, three media outlet categories will be considered. The first is BioIndustry Media, whether created by individuals or the product of substantive media enterprises. They exclusively cover the biotechnology industry.

The second media outlet category is Financial Markets Media. This category covers all financial markets, but are of interest when it covers the biotechnology industry. Financial Markets Media draws a larger audience than BioIndustry Media, given its wider scope. CNBC reports an hourly average of 177,000 viewers to its television programming during the business day, while its website reports 107 Million (non-unique) visitors during May, 2019⁶. While the fluctuations in usage throughout the day and business week are unknown, presuming website visits for 30 days each month and 24 hour website usage, this computes out 148,000 average visitors per hour. Changing assumptions to a five-day business week, and 12 hours each days of heavy website usage, the average access grows to over 400,000 visitors per hour. Here is the first instance where the impression of a media outlet being a television entity turns out to draw far more media consumers in its online presence.

Similarly, the Wall Street Journal publishes a print edition daily, Monday through Saturday. It has a print subscription base of 900,000, and a digital subscription base of 1.6 Million⁷⁻⁹. The Wall Street Journal site draws 42 Million visitors per month globally, while other parts of its Digital Network include MarketWatch with an average of 10 Million visitors online each month, and Barron's averaging 2.5 Million visitors monthly. Again, its online presence is far more significant than its traditional paper format.

Coverage in Financial Markets media has also extended beyond publicly-traded stock reports and other general financial information. For example, in the Wall Street Journal, Novartis and Amgen's Aimovig, a migraine preventative, was featured in a 900-word story in 2018, and Sage Therapeutics's Zulresso, a postpartum antidepressant treatment, was the subject of a 450-word story in 2019^{10,11}.

The third media outlet category covered in this paper is Mainstream Media. This is composed of news organizations with large mass audiences, to which they provide information relevant to their interests. While Mainstream Media has not generally covered the biotechnology industry, there are exceptions. On March 19-20, 2019, the mainstream coverage following the FDA approval of Zulresso from Sage Therapeutics was exceptional¹². Coverage included a front-page story on the

New York Times, segments on ABC’s “Good Morning America” and NBC’s “Today Show”, and an on-air feature on NPR’s “All Things Considered”. A detailed analysis of the total media coverage can be found in the article “When an FDA Drug Approval Makes Mainstream News”.¹³

In terms of mainstream audience reach, the New York Times has 1 Million paid print subscribers and 3 million paid digital subscriptions. Its website draws 50 Million average visits monthly, providing yet another example of the growth of online media consumption^{14,15}. ABC’s “Good Morning America” and NBC’s “Today Show” together are viewed by over 8 Million viewers, and “All Things Considered” from NPR has 14 Million weekly listeners via radio, and more in podcast form^{16,17}.

It should be noted that audience statistics for all media outlets, and programs within those outlets, often use different measures in terms of days, weeks and months. Also, many fail to distinguish between total visits versus the *unique* visits during that same time period. Still, the published statistics do serve as an indicator with regard to audience size.

Table 1 lists exemplar media outlets in each of the media outlet categories.

THE 2020 MEDIA LANDSCAPE

There are four essential differences between the media landscape in 2012 and today, which must be represented in any new media model.

Table 1: Media Outlet Categories

Media Outlet Category	Exemplar Media Outlets
BioIndustry	FiercePharma, Endpoints, Xconomy, Medscape, BioWorld, EvaluatePharma, BioPharma Dive
Financial Markets	CNBC, Wall Street Journal, MarketWatch, Barron’s TheStreet.com, Business Insider, Yahoo!Finance, Investor’s Business Daily
Mainstream Media	Washington Post, New York Times, National Public Radio, Good Morning America, The Today Show, USA Today, Newsweek, Fox News, PBS NewsHour

THE EXPANSION OF TRADITIONAL MEDIA INTO ONLINE AND SOCIAL MEDIA VENUES

A television program once had viewers, newspapers and periodicals had readers, and radio programs had listeners, but no more. Now, for any program or media outlet, there are media consumers, and media may be consumed in many different forms. The PBS Newshour is a clear example of how traditional media has extended into the online space. Originating as a half-hour daily television newscast in 1985, it became a full-hour program in 1993. It continues to air on public television stations, with its audio track airing as well on public radio stations, both nationally and globally. The website for the PBS Newshour has 5.5 million unique visitors each month, but this does not fully describe the online and social media reach of this traditional, longstanding television program²⁰.

On Day 2 following the FDA’s announcement of its approval of Sage Therapeutics’ Zulresso, the PBS Newshour published a YouTube page covering its on-air seven-minute segment²¹. The page offered the video segment itself, links to its Facebook, Twitter, Instagram and Snapchat accounts, links to newsletters and podcasts, and, later, a link to a written transcript of the segment²². There was also the opportunity to join the 1.1 million YouTube subscribers already enrolled. No links were present connecting to schedules where you might watch the PBS Newshour on your local public broadcasting station, nor was there any suggestion that you could do so.

The extended list of online and social media options is emblematic of the “push” and “pull” of online media. Clicking on a link for a written transcript “pulls” the transcript to the media consumer on-demand. Signing up as a follower on Twitter, enables the PBS Newshour to “push” content out to the media consumer. While crowded, this menu fosters the pushing and pulling of content however the consumer wants, and in more forms than any one person would choose to consume. Still, this is the current signature of interconnected social media today, providing multiple online options at every online access point.

Also, what gets posted online is strategic. Whenever text is posted, search engines can “crawl” and index the content, making it word-for-word searchable. As yet, search engines do not transcribe the language content of audio or video, so until then, “tags” or the accompanying text are all that can alert search engines of the existence of online material. In this case, the transcript of the PBS Newshour Zulresso segment, may lead a media consumer (including journalists seeking background and quotes) to all the multiple online media options.

ONLINE-DRIVEN PUBLICATION SCHEDULES

Another transformative aspect combines media consumer expectation with the available technologies needed to deliver the content. In the past, newspapers and periodicals needed to be printed and then physically distributed. Television and radio programs needed to be delivered to meet local broadcast schedules. Today, 24/7 ready readership online means that the posting of content cannot wait. If a media news outlet does not post in a timely fashion, another one may become a consumer's media outlet of choice.

It is this consumer-technology phenomenon which has led to a distinction between the digital and print editions of the same publication, and the posting of a vetted transcripts at a later time than the posting of a video²². In the Zulresso case, the FDA published its approval in a press release at 5:53PM on March 19, 2019, the New York Times published a previously-researched and polished 1,500-word article online just under two hours later at 7:45PM. This article appeared in print on the front page of the New York Times the following morning. While printed in the March 20, 2019 edition, the story continued to carry the March 19th dateline²³. Instead of the print edition driving what is published online, it is now reversed. Online drives print.

SECONDARY & TERTIARY DISTRIBUTION OF BIOENTERPRISE-DRIVEN CONTENT

One solution many online sites have used to meet the demand for fast and accurate information in the minutes and hours after a news event is to immediately post press releases sent by paid distributors, such as PR Newswire and Business Wire. These two companies, for example, have been in business for some 70 years, and so clearly, the demand for the distribution of accurate information is not new.

In the case of the FDA's announcement of its approval of Zulresso, on March 19, 2019, the FDA itself issued a press release via PR Newswire at 5:53PM¹². This was followed one hour later by Sage Therapeutics issuing its own press release at 7:00PM over Business Wire²⁴. The media response started slowly with the FDA release, but within a 20-minute period of the Sage release, the Sage Therapeutics' own material was posted word-for-word by the Associated Press (AP), Barron's, MarketWatch, TheStreet.com and Yahoo!Finance. This Yahoo!Finance posting was in fact its second posting of the night, having previously posted the CNBC announcement earlier in the evening. Knowing who will repost information directly, and who prefers to create its own original

source material, is essential strategic media relations information.

Another important distribution network is made up of the media consumers themselves. They can repost anything they choose on multiple online and social media platforms, providing the potential for significant tertiary distribution. While the bioenterprise cannot control this distribution, relevant information is presumably being moved through a large, interested audience.

Of course, when information can flow unedited over a volunteer network, information can be positive, negative or just plain incorrect. Thus, the bioenterprise must anticipate adverse information, as well as misinformation. Being prepared with effective materials, press releases, quotes from CEO's, experts willing to speak, media platform-ready copy reflecting a variety of scenarios, etc. is an essential part of delivering fresh information when it's needed, and improving the chances of driving all media toward a favorable perception of the bioenterprise.

POTENTIAL FOR MAINSTREAM MEDIA INTEREST

The FDA announcement of a drug approval is most often limited to Bioindustry and Financial Markets Media, but even this coverage requires effort on the part of the bioenterprise. Of the 59 novel drug approvals in 2018, the FDA only issued a press release announcing its approval in 24²⁵. Whether with or without an FDA press release in play, corporations frequently issue their own via a paid distribution service. Still, a press release does not guarantee press, but it can often be the trigger.

When Mainstream Media has been given notification in advance of an FDA announcement, they can prepare. Such was the case with Zulresso. As a comparator, in 2018, Aimovig from Novartis and Amgen received mainstream attention, but to a somewhat lesser extent. The Bioindustry and Financial Markets media coverage were essentially comparable to Zulresso's, with Aimovig receiving a longer Wall Street Journal article in its Health section. However, its New York Times print story appeared on page A13. (Page A1 is the front page.) Dr. Sanjay Gupta did not cover Aimovig until the afternoon, reducing its replay potential, and NPR had an online entry in text, but no on-air coverage.

One major question is: How could the mainstream response be so different? Part of the mainstream success of the Zulresso story might be attributed to the fact that no substantive newsworthy events developed during the 24-hour cycle leading up to its FDA approval announcement, nor during Day 2. There were no competing top stories. In contrast, the day before Aimovig's FDA approval announcement, significant national news broke and remained newsworthy for several days. This

arguably reduced the level of mainstream attention even possible for all other stories. What is carried as “top of news” had the same space and time daily. Which stories fill the top slots is a daily competition.

These two recent examples, however, do demonstrate that bioindustry news can also be mainstream news, and thus, it is considered in the new media model. Proactive media preparation can lead to exposure in Mainstream Media, which can make the public aware of its products and complement its marketing efforts. It can also increase the perception of value with respect to its publicly-traded stock.

Of course, there are potential downsides. Mainstream audiences also view news in a social context, and this can evoke significant negative public response. Consider the public outcry after Martin Shkreli increased the price of the drug Daraprim by 5,000 percent in 2015¹⁸. Several years later this was followed by his conviction and sentencing on fraud concerning another pharmaceutical company¹⁹. It is unclear if the general public makes the distinction between an opportunistic act of greed with respect to pricing a half-century old drug, and pricing which reflects the cost of human endeavor and financial risk required to develop truly novel and breakthrough treatments. Regardless, mainstream coverage invites damage potential – to the biotechnology industry, to individual companies, and to bioprofessionals. And such issues as biopharmaceutical pricing will remain sensitive for as long as it is unfathomable to the average person.

BIOENTERPRISE MEDIA MODEL 2020 – TECHNOLOGY AND TRUST

In addition to the drivers of the new 2020 model described earlier, one more area has been explicitly added: Trust. When media fails – be it in the relationship between bioenterprise and the media outlets, or between the media outlets and their audiences, it is a failure of trust. Thus, the actions – and reactions – of the bioenterprise, must first build and maintain trust. Trust has been added as an explicit part of the strategic bioenterprise media model, and whenever it breaks down and in whatever way, the bioenterprise must be ready to act.

There are two areas in SBMM 2020 where trust is essential. First, the source information which all media outlets draws from must be trustworthy. The bioenterprise must be committed to the trustworthiness of its own information. This includes all information that it publishes, from press releases to the communications of its C-level officers and scientists, to peer-reviewed journal articles from its scientists, and more. Also, the bioenterprise must be trustworthy in terms of anything that it provides while

undertaking public relations campaigns. A misstep by any of the above can label all information provided by the bioenterprise as unreliable. In the worst case, it can invite an unflattering story covered by media, in and of itself. Thus, trust starts with the bioenterprise, and then it is carried forward through the media model, and ultimately to the media consumers who choose the media outlets they trust. Even so, the bioenterprise cannot control the trustworthiness of other external information, nor can it control what media outlets produce. Every effort must be made to ensure that external sources are informed, and that media outlets have appropriate and timely information.

Figure 1 depicts the Strategic Bioenterprise Media Model 2020 (SBMM 2020).

SBMM 2020 – MAINSTREAM MEDIA SUBMODEL

Given the importance of Mainstream Media coverage, a more detailed submodel has been developed. For one reason, Mainstream Media exposure is also challenged by the volume of what it must produce on a daily basis. In 2016, the Atlantic published an analysis of the daily output of several news media outlets²⁶. The Washington Post, counting both original content and wire stories, “publishes an average of 1,200 stories, graphics and videos per day”²⁶.

The New York Times publishes some 150 original content pieces per day, save Sunday, when it publishes 250. Over 300 multimedia graphics also appear each month, in addition to blog posts, “interactives”, and some 200 Associated Press and wire stories, which add to its online presence. The print edition of the New York Times remains unchanged in terms of physical size, which publishes almost entirely original content plus approximately 13 wire stories in every print edition. On its front page, the New York Times print edition carries six stories each day, four of which are “above the fold”, and 12 abbreviated news stories at the bottom along with their location within the paper.

To frame the good fortune of the Zulresso coverage, in the past five years, only one other FDA approval received a front-page story in the print edition of the New York Times. On November 19, 2015, the headline read: “Genetically Engineered Salmon Declared Ready for U.S.”²⁷ While its website does not have the size of the print edition, the priority in the print edition is an indicator of the positioning of the story as it is presented to online visitors.

Figure 2 depicts the submodel for bioenterprise media strategy as it relates to Mainstream Media. In print, the contact which is generally made regarding a story is a journalist. In radio and television, the contact often starts with a producer. This can vary through all

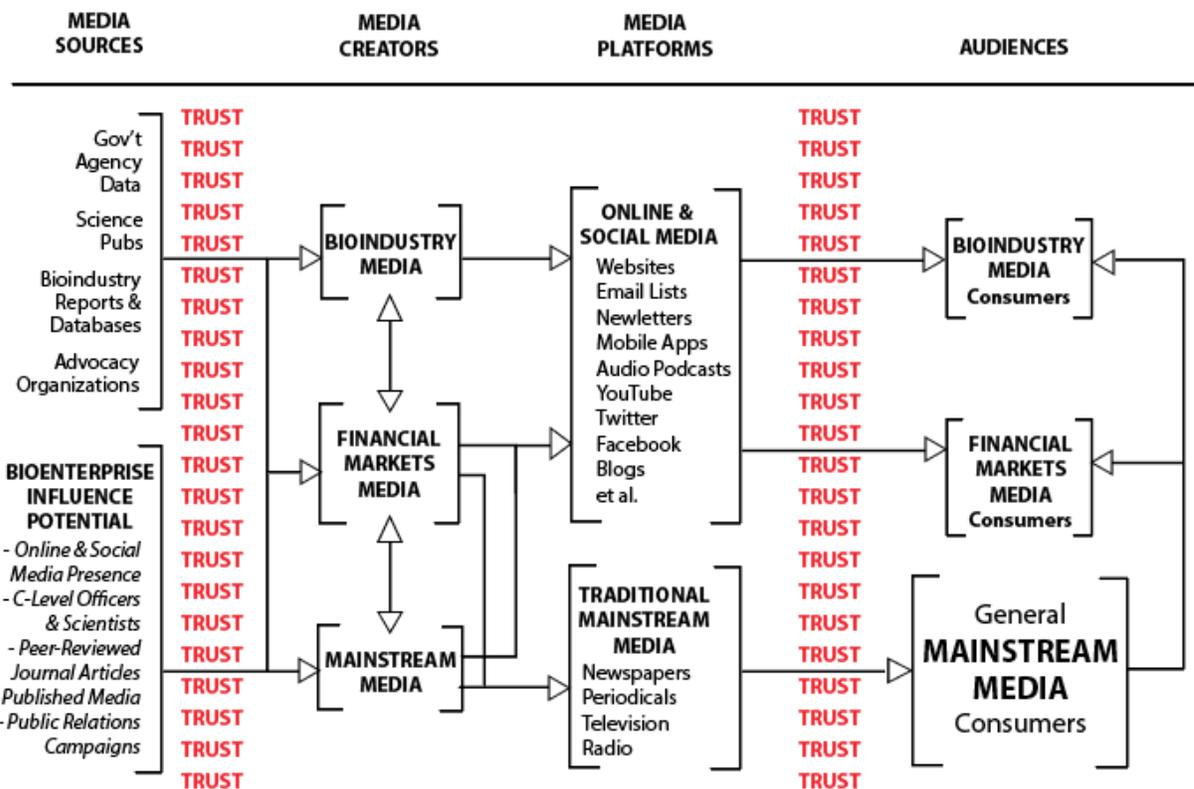


Figure 1: Strategic Bioenterprise Media Model 2020 (SBMM 2020).

media outlets. The media content contact and/or creator have been identified as journalists and producers for purposes of the model.

BIOENTERPRISE PREPAREDNESS

All of the elements described in Figures 1 and 2 can be put into play, and there can still be challenges to achieve successful outcomes in the Mainstream Media.

USE OF SCIENTIFIC AND TECHNICAL TERMS RELEVANT TO THE MAINSTREAM AUDIENCE

Biopharmaceuticals are typically described as “biologics” which are “large molecules” which need to be “infused” at infusion centers or hospitals. Dr. Sanjay Gupta described the biopharmaceutical Zulresso as an “IV drug”.²⁸ The language of the biotechnology industry is not the language of the mainstream audience. Every element of the story must be comprehensible by the mainstream audience.

DEVELOPMENT OF MEDIA RELATIONSHIPS

Press releases and email pitches are the two primary ways that journalists and producers are communicated the potential for stories (and guests). The journalists and producers do not read every email or press release sent to them. They are most likely to respond to someone with whom they have a trusting relationship. These can be people within the bioenterprise and/or external public relations professionals.

Furthermore, the timing of an FDA approval is substantially anticipated following the input of any advisory panels. This gives public relations professionals time to work with journalists and producers well in advance of the approval. Once the approval is announced, there is no time to develop the story beyond what is immediately available. Shortly, it will no longer be news.

IDENTIFYING MEDIA OUTLETS WITH VIRAL REACH

Aside from considering the audience reach of a target media outlet, assessing its viral reach is a complex undertaking. A number of organizations provide these analyses with respect to individual media outlets. Turbine

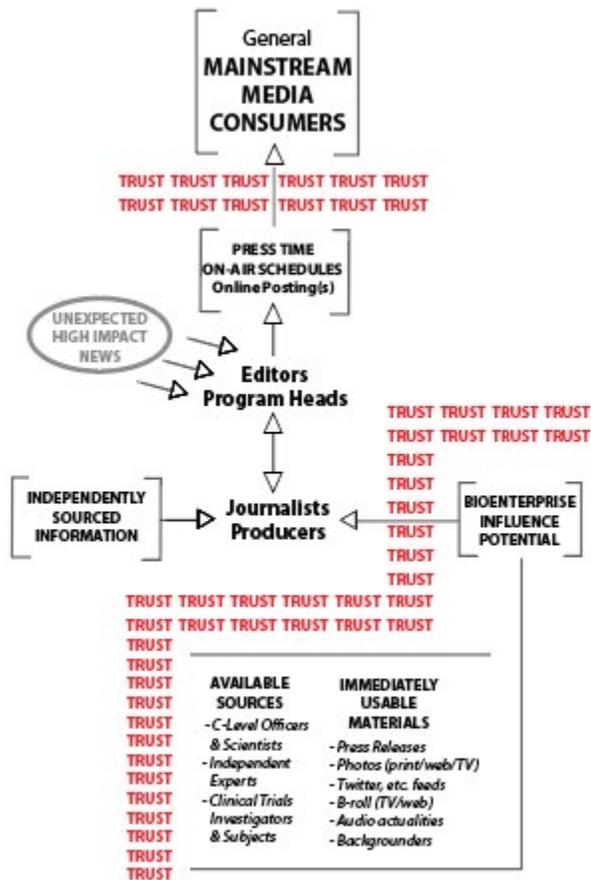


Figure 2: SBMM 2020 – Mainstream Media Submode.

Labs published its most recent “The Ten Most Viral News Sources” list on March 28, 2018²⁹. The Zulresso story was covered in all seven of the top seven media outlets identified current; Aimovig was covered by five, although some in a less prominent position. See Table 2.

BUILDING THE MAINSTREAM NEWS STORY

There are no guaranteed formulas for creating successful mainstream news stories, although searches of both the professional and academic literature reveal anywhere from five to eight essential elements. Common are Timing (happening today), Proximity (issue is important to the audience), Significance (percentage of audience affected), Prominence (inclusion of famous or known people), Human Interest (emotional reaction), Uniqueness (story different from others), Conflict (everything is not resolved), and more.

Still, the work of neuroeconomist Paul J. Zak is helpful to getting to the core of what makes a good story – newsworthy or otherwise. In his 2014 Harvard

Table 2: Turbine Labs: Ten Most Viral News Sources

Rank	Media Outlet
#1	Yahoo!
#2	New York Times
#3	CNN
#4	Fox News
#5	National Public Radio
#6	Washington Post
#7	USA Today
#8	BuzzFeed
#9	The Guardian
#10	British Broadcasting Corporation

Source: Turbine Labs, “Ten Most Viral News Sources”; March 22, 2018²⁹

Business Review article, “Why Your Brain Loves Good Storytelling”, he writes: “a story must first sustain attention by creating tension during the narrative”.³⁰

Consider the Zulresso story: There was finally an available drug for mothers with postpartum depression (first conflict – mothers, newborns, depression), and then there were still two more surprises: The IV treatment took 60 continuous hours, and it cost \$34,000. That might count as two or even three more conflicts, since there was not yet time for insurance companies to say if they would cover it. There was at least one shock for everyone in this story, and sometimes three and four, which brings home the point that a story is not a recitation of facts. To borrow from Paul J. Zak, a story needs to create tension while it is being told. For the bioenterprise, the focus of the story they want to tell Mainstream Media now moves from the science, the funding, and their successes along the way ... to the experience of being human.

CONCLUSION AND DISCUSSION

The commercial benefits of reaching the BioIndustry and Financial Markets media have been understood for some time; however, the extensive employment of online and social media in the current media landscape is unprecedented. As to the benefits to the bioenterprise as a result of Mainstream Media attention, there has been insufficient activity to enable general metrics. Even so, Mainstream Media attention is now a reality, and so it has been included the Strategic Bioenterprise Media Model (SBMM 2020) and a Mainstream Media Submodel.

Still, there are challenges. The task of communicating the scientific basis for a value proposition, and then the scientific differential from the previous available product, is not generally of interest to the mainstream audience. Recalling Dr. Gupta’s use of the term “IV drug” instead of the cumbersome

large-molecule-biologic-needing-infusion suggests that bioenterprise must work to find a viable mainstream vocabulary, and one which relates to everyday experience.

Yet, while only a few bioenterprise stories have gained mainstream coverage, there is reason to believe that others can also be successful. Biopharmaceuticals, in particular, directly impacts the human condition, and where there is human impact, there is the likelihood for a human story, be it patients, scientists, the suffering or triumph of the vulnerable, and more. Furthermore, the biopharmaceutical pipeline is significant. As reported by Genia Long of the Analysis Group in the 2017 report “The Biopharmaceutical Pipeline”, there are more than “6,300 products in clinical development globally” and “approximately three-quarters (74 percent) of clinical-phase projects were potentially first-in-class”.³¹ This suggests that there will be a steady influx of new products and new stories to be told, many of which can be made relevant to the Mainstream Media audience.

DISCLOSURE

In addition to being a professor of bioentrepreneurship at the University of San Francisco, the author is a professional journalist. She produces and hosts Tech Nation, and its regular segments in the areas of biotechnology and health, which airs on the NPR Channel on SiriusXM, among other venues. While Tech Nation examines the impact of breakthrough science and emergent technologies for the mainstream audience, it does not cover breaking news.

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Many thanks to the public relations professionals, who work in and with bioenterprise, to make scientific concepts understandable to the everyday person, to relate that science to value, and to create stories that are both newsworthy and mainstream.

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