



## Targeted Communication to Reduce Antibiotic Prescription

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### ABSTRACT

This paper reports a commissioned project to design targeted communication materials to attempt to reduce antibiotic prescription rates.

### KEYWORDS

*targeted communication, antibiotic prescription*

In April 2014, the World Health Organization published a report entitled "Antimicrobial resistance: Global Report on Surveillance measures" in which studies of the data from 114 countries suggest that bacteria strains worldwide are becoming increasingly insensitive to one or more common types of antibiotics. The use of so-called broad-spectrum antibiotics is particularly associated with the development of antimicrobial resistance. Additionally, antibiotic therapy is ineffective for more than 80 percent of straightforward respiratory infections, with such treatment having potentially negative side effects such as a shift in the balance of microorganisms in the intestine. (WHO, 2014)

Around the same time of the WHO report, the Institute of Hygiene and Environmental Medicine of the Charité - Universitätsmedizin Berlin approached Lindgrün GmbH in spring of 2014 to develop communication material aimed at creating a more meaningful use of antibiotics and, specifically, attempting to reduce the prescription of antibiotics for upper-respiratory infections in Berlin, Germany. This forms part of an overall antibiotic intervention project running from September 2014 to March 2015. Key participants include Professor Dr. Petra Gastmeier, the Director of the Institute, Dr. Janine Zweigner, and Dr. Miriam Wiese-Posselt. The wide scope of the assignment demanded a period in which we tackled each of our research and analysis goals in order to create a convincing, targeted message. What was crucial to this phase was getting a grip on the possible reasons contributing to the rise of antibiotic resistance. From there, we translated our findings into design proposals that formed the core of the task and summoned our expertise in strategic design. Working closely with the client, we moved into the phase of actively supporting the pilot project, which is still currently underway and yielding some very positive but, so far, limited feedback.

We began our research with a review of several extant European campaigns focusing on antibiotic intervention strategies. The different approaches range in tone and target audience, as well as the quality and quantity of presented information. Most studies have been conducted outside of Germany, yet no publication gives insight into the design process behind the choice of visual communication, or explains how the actual socio-geographic frameworks are structured. We could find no examples of storytelling, positive deviance, user journeys, narrative interviews, or evidence of target groups beyond patients and general practitioners mentioned in the available research papers. Nor did we find information on communication strategies or implementation plans, which we see as a significant problem in medical-related scientific information when it concerns communication and design.

We were able to isolate many factors contributing to the overall positive and negative effects of some of the campaigns. Among them, it appears that the most successful are those that are multimodal and that make clear, relevant statements addressing the differing

perspectives of both patient and GP target groups. Less effective are those that use media for its own sake, offer too complex a message, or create a gap in the perceived and actual relevance of the issues to these audiences.

This desktop research was presented to the client with findings, isolating several factors we felt aimed at a high likelihood of the project's success. From the examples we looked at, a complete, structured experience of the topic using few but high-quality media and separate, relevant statements to doctor and patient appeared to work best.

But there was more research to be done, and we were able to convince our client to allow the freedom to embark on our own modest but qualified local research. Our clients connected us with three physician's practices in the greater Berlin area, each located in a different district that represented, as much as possible, a social and cultural cross-section of the city. In addition to conducting brief interviews with three doctors and six nurses, we spent approximately three hours in each of the waiting rooms just observing.

The findings from the total sixteen-hour observation process were as follows—no one was seen to read or pick up any medical flyers; the doctors did not want to exceed the allotted appointment time with their patients; patients leaving with a prescription appeared more relieved than when entering; the age-group of patients was non-specific; and nurses seemed to have a positive effect on patients entering and leaving the practice. Another interesting finding outside of this exercise, but supported by local statistics, is that GPs in Germany are predominantly female. (Bremen University)

Observations hinted at possible reasons for the unnecessary prescription of antibiotics, many of which were supported by our research. With regard to the application of guidelines, physicians report either a lack of awareness of the recommendations or do not have the time to review them. In addition, the insistence on current practice could cause non-compliance of recommendations and be an explanation for inappropriate therapies. (Zweigner, 2012) Further surveys show that doctors often feel under pressure by patients or by the parents of children who are patients, to prescribe antibiotics against their better judgment, as in cases of viral infection. (Zweigner, 2012)

These findings brought into focus the issues relevant to a physician's point of view, which we felt our message had to address. These were time equals money, the need for practical and convenient solutions, a tendency to resist change, and, finally, a view that patient questions cost time. It was clear to us that time was a recurrent and crucial factor for physicians. In addressing them, our design package must either offer timesaving components, or at least avoid a high-time investment.

Because of a lack of resources, patients were treated as a single target group, focusing our communication on the ill patient who seeks healing by visiting the doctor. We think of this as a

pathway along which we identified a common focal point: the consultation. This direct meeting is the point of relevance for the message, overlapping the experience of both doctor and patient. Here we could focus on the core message of better health for the patient without a high time-investment for the physician and where appropriate tips would be one of our concrete communication objectives. We were also influenced by an idea behind a project done by Jorge Frascara and Guillermina Noel. (Formoso, 2013) Here, the physician provides detailed, helpful, and informative material to his/her patient in lieu of an unsuitable antibiotic prescription. It is a service design on a small scale, a concept that was well received by our client. We saw it as an opportunity to instill a positive and empowering message to the patient: there are many viable pathways to better health they can pursue themselves.

In order to reach as wide a group of physicians as possible, we consulted the Sinus-Milieus®, an established target group model based on demographic criteria such as age, gender, education, occupation, and income within the context of a population's cultural setting, behavior, and values. These models are used in major marketing studies in Germany, as well as internationally. (Flaig, 2014)

We extracted three different milieus in which our physicians are represented and gave an overview of the target group information to the client. We made the groups tangible to them by using moodboards that covered the values, lifestyles, work environments, and general likes of each. Differences—but also commonalities—emerged from comparing these moodboards, conjuring a picture of what our message to physicians must look like, as well as what it should communicate.

One conclusion we drew from this examination of physician target groups, as well as from our earlier research, was to build a positive statement strategy. Our visual package not only had to offer timesaving elements but empower the physician by facilitating his/her communication with the patient. It was crucial to avoid a patronizing tone or language in the material. The project had to offer high-quality content and visual appeal with tactile sensation while stressing core messages to both physicians and patients. To the patients, fewer antibiotics for better health is the message. To the doctors, antibiotic resistance is a problem that can be tackled without a big investment of time. After some deliberation, we boiled this pot of ingredients down to one clear slogan: "Less is More" ("Weniger ist Mehr"), which was incorporated as part of the project logo.

At this stage, we proposed a four-phase project plan to our client on how the project might proceed, with actions and events dictating the type of material necessary. The material would have to address both physicians and patients from different communicative and content perspectives. The project plan pulled together the conclusions drawn from months of research, planning, and materials, and needed actions by both our clients and us.

To implement the start of the overall intervention project, and in close partnership with our client, a series of Charité-hosted seminars for local GPs entitled "New Ways to Reduce Antibiotic Prescriptions for Respiratory Infections" was planned. Among the planned topics of this workshop were an examination of current studies on international and national antibiotic resistance, the frequency of antibiotic prescriptions given in Germany, the impact of antibiotics on the human gut, and the implications of this data for the future. In addition to the scientific part of the seminars, the doctors would be given an explanation of the material for their patients and how to use it. To encourage registration, but with an eye on time-saving, we suggested that workshops be scheduled on Wednesdays, when most GP practices in Berlin close to handle administrative tasks. We also suggested scheduling them as after work events, spread over four different regions of the city to cut down on travel time.

An invitation to the seminar had been mailed to nearly 2,400 GPs in the Berlin area, initiating a rollout of this part of the intervention project. We created this invitation as a foldout flyer that provided an overview of the subject covered in the workshop as well as a description of the materials, emphasizing that they were designed to support the doctor-patient consultation in an optimal, time-efficient way. Furthermore, the leaflet provides a contact telephone number for, during, and

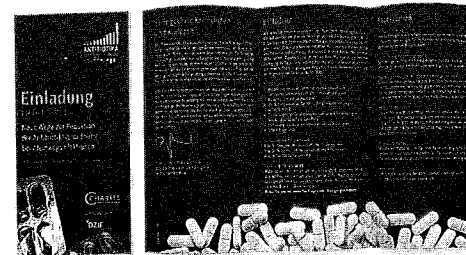
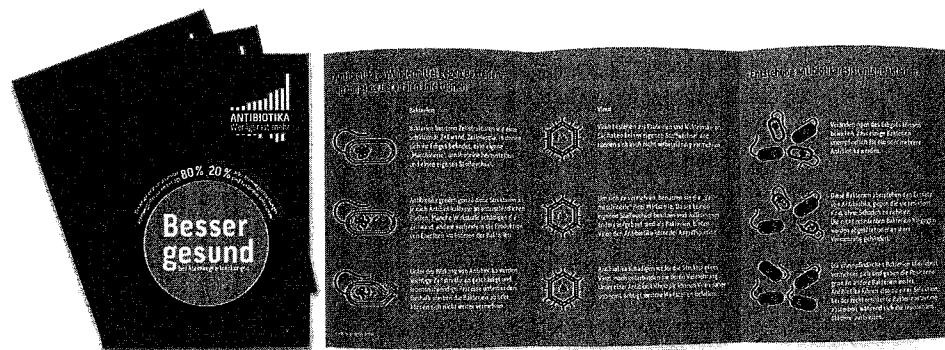


FIGURE 1  
Invitation for General  
Practitioners to attend the  
seminars.

after the intervention phase, in the event doctors have questions or comments, something not normally found in an invitation flyer of this kind.

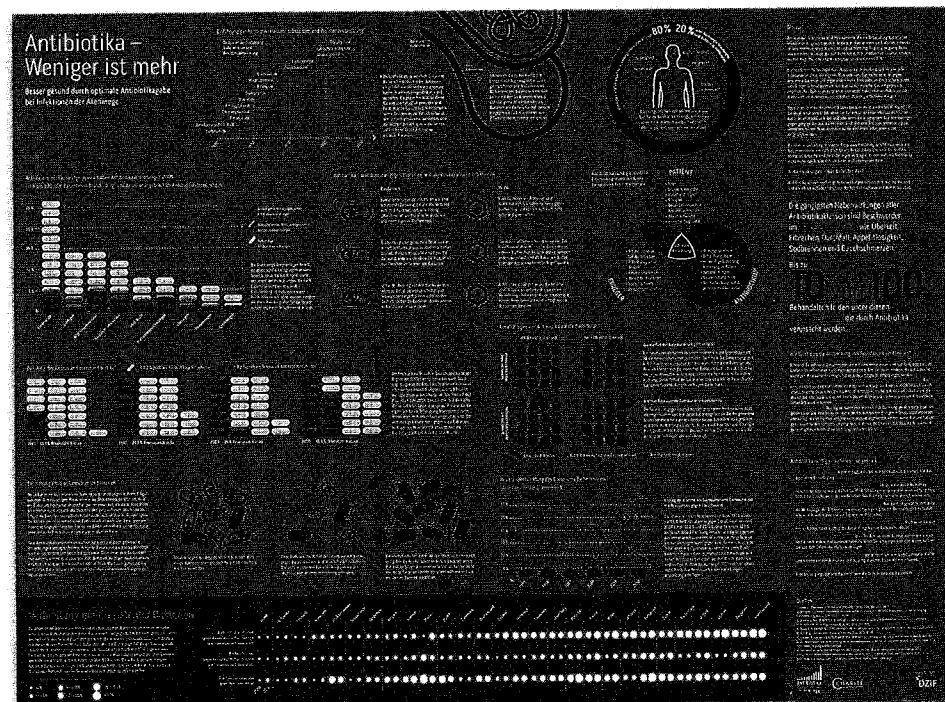
The actual concept material for the patients forms a dominant part of the targeted communication for this project, and its development involved several stages. We set out formulating various options for the visual content, which we analyzed and then discussed with the client. After this process, we arrived at decisions concerning both the information content and final design, at which point the execution began.

In addition to the seminar invitation, the communication material comprises a consultation flyer, brochure, infographics poster, doctor participation poster, and a few small, miscellaneous extras. As these items are the main channels by which the patient might learn about the project—in addition to some press coverage—we looked at several ways to enhance the persuasive nature of their content. The consultation flyer, which a doctor could potentially hand to the patient in cases of respiratory tract infection, uses graphics, images, and brief descriptions to make a concise but pointed explanation on whether or not antibiotic therapy is appropriate for this illness. In addition, it shows in simple graphics the step-by-step process by which antibiotic-resistant bacteria develops. It is a short flyer intended to facilitate the doctor's concise but pointed explanation of whether or not to use antibiotics.



**FIGURE 2**  
**Consultation flyer:**  
Keep it small and simple.  
This is so far the most  
appreciated and used flyer  
by GPs.

**FIGURE 3**  
**Infographic:**  
A huge amount of  
information on one A1  
sheet. This is so far the least  
liked item by GPs.



**FIGURE 4**  
**Patient Information A5.**  
When people are sick, they  
want to know how to get  
healthy and stay healthy.  
This simple insight is  
reflected in the storytelling  
process.

The infographics poster contains more thorough facts on the subject, and if used optimally, such as on display in the waiting room, can reach a potentially wider range of patients. It features graphs composed of eye-catching graphics and images visualizing the key and locally relevant points for the layman. Among the charts depicted are those about resistance development of specific antibiotic classes, percentage of antibiotics prescribed vs. percentage deemed necessary by physician category in Berlin-Brandenburg, side effects of the drugs on intestinal flora, and the steady increase of last-resort antibiotics that have been prescribed in Germany in recent decades. The current feedback from GPs highlights the fact that the infographics poster was perceived as information overload for their patients; hence, the actual use of the infographics poster is very limited.

The doctor participation poster, also intended to be displayed in the GP's office, was designed to give support to the GP practice by displaying its platform to the community and its commitment to the intervention plan. This statement of participation not only benefits the doctor but can also be a conversation piece, encouraging and empowering patients to ask questions about the program.

The patient brochure offers additional, in-depth information balanced by a personalized approach that we feel optimizes its persuasive message. The intention is that the reception nurse would give this brochure to the patient in addition to the small flyer given by the physician, and/or in appropriate situations for them to take home with a prescription. In addition to the factual graphs and medical statistics used in the other material and outlined above, here we present real individuals from different backgrounds whose photographs and stories relating to respiratory illness are placed at intervals throughout the booklet, in between the more factually dominant pages. Based on the range of persons we observed most frequently in our research, we presented a young mother, an older man, and a younger man. Each describes a different attitude or experience regarding antibiotics and respiratory illness, side by side with fact-based commentary on their specific ailments. We also gave a human face to the page summarizing antibiotic resistance attitude or experience regarding

antibiotics and respiratory illness, side by side with fact-based commentary on their specific ailments. We also gave a human face to the page summarizing antibiotic resistance – personalizing it with a photograph and statement by a key physician in the program.

The idea to use real people in this way is based on the concept of Positive Deviance, a problem-solving approach that encourages the use of successfully tried and tested community-based solutions. (PD, 2014) Consistent with our aim of building an empowering message to the patient, we felt the sharing of human experience and opinion was beneficial for those with non-serious respiratory infections. Similarly, we devoted a page in the brochure to outlining common home remedies and over-the-counter solutions. Here we were careful to avoid clichés and overstatements but felt its inclusion would invest the booklet with enough helpful advice to satisfactorily substitute for a possibly needless prescription.

We intended a stronger, user-centered approach for the brochure than had actually been realized because it had to appeal to the 'average person' by outlining common strategies for good health, and it had to keep the scientific details to a minimum. Normally, medical brochures created for the public are dominated by facts and statistics and have little personalized content.

This user-centered approach relates to the language used for the content, which was very much a challenging issue for us. As subtitled in all our project information, we use no material or financial support provided by the pharmaceutical industry in the communication, nor does it have any involvement in the project, and so we wanted to avoid the type of (pseudo-) scientific jargon that the industry often uses. In addition, it was important to keep the language as plain and as understandable as possible to reach the widest target audience. We had to bridge the gap between the scientific approach and the plain language that lay people could understand.

Generally, in communication design, different levels of informational and/or emotional content are used in varying degrees depending on a number of project factors including the type of media, message content, target audience, and the funds driving the project. The use of real people and their stories in this brochure was a way to encourage an empathetic rather than intellectual response, presenting another way to, hopefully, attract people to the material.

The way in which we depict people in the brochure moves us away from our discussion of content to one of the visuals within our targeted communication process, forming the last section of this article. One idea was to present the individual wearing a white T-shirt or holding a white poster board on which we would later superimpose their individual narratives. Several photographs were made along these lines by Wolfgang Hanke, who is credited for all photography on the project, and though this solution did not make the final cut, it was one interesting way to integrate the context of the individual's story with his or her image. Perhaps

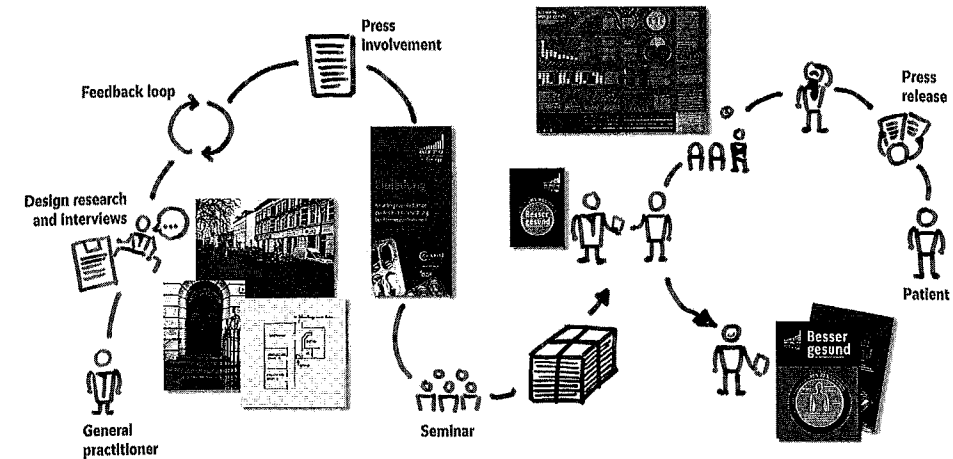


FIGURE 5.  
Summary of the design  
process

even stronger was our final choice, to feature individuals at a distance in a context and then in close proximity. They appear in two postures, two moods, and with their close-up image gazing directly at the camera. The eyes are emphasized and pleasantly confront the reader, as we intended the image to capture its audience.

In deciding the color palette to use in this communication, we looked back at some of the observations, other than the qualitative ones, that we made in the waiting rooms of the Berlin physicians. Immediately apparent to us, but also somewhat anticipated, was the rather narrow use of color and imagery around the room and on the walls. Blue and green were the dominant color schemes, and soft photographs of families featuring healthy-looking elderly grandparents were a common hallmark. Imagery in a healthcare environment is fraught with sensitive issues beyond aesthetics and touches on ethical, emotional and informational matters. In thinking about these visual combinations of color and image we found in the waiting rooms, we knew we would go for something different.

As mentioned earlier, balancing the levels of emotion and information plays a significant role in determining the design of concept material. A campaign such as this with a weighty number of figures, graphs, and factual information to present, needed a pull in the other direction to provide an emotive brightness that would transport the scientific content. The two main colors purple and orange are red tone-based 'female' shades, and they form a bold color scheme within the context of medical and scientific driven health communication, which sometimes underestimates the importance of emotion. We felt this 'eye-candy' magazine-like quality of our colors also sends a more positive message, unlike the pale blue-green palette mainly dominating the communication of the pharmaceutical industry. We wanted to avoid the message of fear implicit as the common denominator in much of this medical communication, and by doing so, suggest a feeling of empowerment for the patient.

We included more subdued tones in our communication, as well, to offset the boldness and offer a more tranquil feeling when needed. To an extent, the brief duration of the intervention project dictated the degree of color vibrance. We might have chosen a more sober palette for a long-term project that ran, for example, for decades.

In developing the logo, we were inspired by our client's data showing the antibiotic prescription behavior of local medical specialists. Their chart compared first-line antibiotic prescription treatment with a growing last-line or last-resort antibiotic dispensation. In the logo we adopted these bar chart ideas, using the first-line antibiotic lines above the word 'Antibiotika,' and the last-resort lines beneath the slogan "Weniger ist Mehr" ("Less is More"). Both rise from low to high as our eye travels from left to right. The top increases steadily with the last bar making a big jump upwards, while the bottom bars representing last-resort antibiotics rise sporadically and unpredictably.

The imagery in the material is dominated by the issue at hand—pills and empty pill cards or blisters. We use pill imagery in different places, sometimes running along the bottom of the page against the purple background, and in the charts relevant to antibiotic dispensation. Our graphics are mostly simple black and white illustrations that form a contrast and balance to the photographs of real people in the brochure, as more detailed drawings might have detracted from them. The drawings of bacteria are based on a pill shape, alluding to the connection between bacteria and its cure, antibiotics, as opposed to the viral shape, which is completely different and makes no visual link to the drugs. We used orange lines to playfully divide information on the page, eliminating the need to put graphs into boxes, instead, creating a more open way of associating graphs with textual content. All of these elements combine to form a distinct visual language.

Although the seminars have been completed, the project with the dissemination of materials in GP offices is still going forward. A survey to gather feedback on the project is underway, and for that reason there are currently limited statistics and remarks. The invitation flyer, which had been mailed without an accompanying letter, received an overall 8.4% response rate with 6% percent of general practitioners from Berlin attending the workshops.

There was positive feedback for the quality of the material, specifically on its structure, design, and visual appeal. The patient brochure and consultancy flyers were particularly appreciated by the GPs who did respond, though a few suggested the booklet might be too long or have too much scientific information. This coincides with our original desire to make the user the center of the brochure, with less scientific background information.

We are extremely pleased to have had the opportunity to work on this challenging and formidable project, and we hope that the campaign of targeted information will have some impact in reducing antibiotic prescriptions for respiratory infections in the Berlin area.

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Regina Hanke began her career in London as a graphic designer. After years with The Partners in London where she learned that good ideas can create a market pull, she worked for MetaDesign in Berlin where she acquired profound knowledge of branding and corporate design processes working for international corporations. Her last engagement as an employee at Frog Design introduced her to research as an integral part of every product development process. Equipped with extensive experience, an additional degree in marketing, and a passion for brands and design, she founded Lindgrün GmbH together with Wolfgang Hanke in 2006.

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