

Veterinary Medical Writing

SECTION EDITOR



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Editorial

In this issue of Veterinary Medical Writing, we are revisiting the concept of graphic medicine: the use of comics in healthcare communications. In the article, I give my perspective on why I believe this underused medium is an asset for medical communications. It brings medical humanities into the clinical space, in-line with the current evolution of clinical care to a patient-centred approach. Moreover, this Graphic Medicine is a powerful educational tool, as well as

having the versatility to generate engaging content on social media. As a freelance medical writer with an interest in graphics and visual communications and who has loved graphic novels since I picked up an issue of the comic book series *Asterix* when I was a child, I am interested in exploring how graphic medicine can be applied to veterinary medicine to improve animal welfare. My first foray into the genre was published in this section in September

2022, and I have learned a lot since then, not least how AI can help me create graphic veterinary medicine content. If this article whets your appetite to learn more about graphic medicine, EMWA's next conference in Valencia, Spain, May 7–11, will feature Dr Monica Lalanda, co-founder of Medica Gráfica, who will speak on the subject at the inaugural Visual Medical Communications Expert Seminar Series (ESS).

Be there or be square.

Louisa

What's up, doc? Defining a use for graphic medicine in veterinary communications

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This article aims to make the case for graphic medicine – comics in healthcare – and attempt to define their use in the veterinary field. Graphic medicine is underutilised in medical communications. However, a growing network of clinicians and academics has been working to change the status quo. The cognitive science that may explain why the comic style can be so engaging is explored, along with the barriers that have prevented the genre from being more widely used in healthcare communications. Drawing on the framework already established by graphic medicine, I speculate how comics in the veterinary domain – graphic veterinary medicine – might be applied to improve animal health and welfare. Finally, I provide some practical tips on how medical writers can start producing their own graphic medicine content. There is evidence that comics are superior to text alone in communicating information. Furthermore, there is an unmet need in medical communications for ways to combat harmful medical disinformation – as the recent COVID-19 infodemic demonstrated – and graphic medicine, along with graphic veterinary medicine, is a valuable tool to address this need.

What is graphic medicine?

Graphic medicine is “an interdisciplinary field within the health humanities that encompasses the creation, use and study of comics in medicine and health”.¹ More succinctly, it is the “intersection between the medium of comics and the discourse of healthcare”.² A comic is “juxtaposed pictorial and other images in deliberate sequences intended to convey information and/or produce an aesthetic response in the viewer”.³ The use of comics to communicate health information had been commonplace from the mid-eighteenth century onwards,⁴ predominantly as morality tales that aimed to promote public health. In the 1950s in the US, there were even medical comic titles “M.D.” and “Psychoanalysis” stacked on newsagent shelves alongside the more familiar superhero fare.⁵ However, apart from a resurgence in health comic publications created during the HIV/AIDs pandemics on an awareness and social justice platform¹, the use of comics as a tool in medical communications faded into obscurity. In 2007, artist and physician Dr Ian Williams founded his website Graphic Medicine (www.graphicmedicine.org), a forum where comics in healthcare could be defined, explored, and developed. “Graphic medicine” has since been adopted as the term for comics in healthcare, and a genre was (re)born. Since then, graphic medicine communities have been established in Italy, Japan, Freie Universität Berlin, and Spain, where Dr Monica Lalanda co-founded *Medicina Gráfica*.

Graphic medicine has been shown to be effective in diverse areas of medical communications. Its content can be broadly separated into three overlapping categories:

- Those with an educational purpose to explain complex processes, help patients take more ownership of their care, ease anxiety about procedures, and make decisions in their treatment.^{6–9}
- Personal stories (“graphic pathography”) that use shared experience to provide reassurance and foster empathy. Not only are these invaluable for patients and caregivers with a specific illness, but they also help healthcare providers (HCPs) and medical students develop empathy for patients.
- Finally, as a *therapeutic bibliography*, where access to medical graphic comics can help alleviate patient anxiety, increase positivity, and safely explore the possible positive or negative outcomes they may face. Also to address clinician distress (such as burnout or moral injury); as in “Taking Turns”, by MK Czierwiec.^{10,11}

There are also tangible uses for comics aimed at HCPs, as well as patients and the lay public. Aside from their use in developing empathy – essential for effective patient care – the advantages of literature presented in an engaging, easy-to-read format to someone who is likely time-poor with an already high cognitive load should be



Figure 1. The use of metaphor in graphic medicine

This panel, from a graphic veterinary medicine project to raise awareness on Syringomyelia and Chiari-like malformation in Cavalier King Charles spaniels, depicts one dog with a rugby ball icon superimposed over its head and another with a football icon. The use of this imagery is fully evidenced, being based on imaging studies of affected dogs [Rusbridge, C. (2020) New considerations about Chiari-like malformation, syringomyelia, and their management, *In Practice*:42(5);252-67]. The goal is that the reader will choose a puppy with a rugby-shaped head and reduce the demand for animals with abnormally spherical craniums.

apparent.¹² “Beware of Droplets and Bubbles” by Dr Argha Manna is a standout example of a comic that would appeal to medical professionals.¹³ Based on the fluid dynamics of disease transmission studies at the Bourouiba Group laboratory at MIT,¹⁴ the comic style is used to contextualise the science to the COVID pandemic. After reading the article, the clinician will have a much better understanding of how viral particles change the physics of water droplets without needing to read a dense study report, including sections with applied mathematics. Furthermore, it can be argued that the science presented in the comic format is more engaging than if the same information was given in the traditional scientific diagram format, whatever the level of education of the reader.

How graphic medicine works: image, metaphor, & narrative

A recent meta-analysis supports the theory that the use of images in health information results in superior information, understanding, and recall.¹⁵ Here, I speculate how the comic styles’ use of image, along with metaphor and narrative,¹⁰ not only improves understanding but prompts behaviour change.

Consider first the typical format of the comic; the text and image are presented simultaneously, giving the reader immediacy (with no need to interrupt the reading flow to hunt for a figure) along with increased engagement with the images.¹⁶ The visual permanence of the printed (or displayed) image, as opposed to the moving one, also allows the reader to control the rate of

information transfer. Moreover, the reader can skip back and forth in the reading field with more ease than it takes with text, and it also gives the reader permission to linger and process the content in their own time.¹⁷

Dual coding theory proposes that the learning and retention of information are optimised if that information is delivered simultaneously in verbal and image form. This theory is supported by several studies that have linked the comic format to improved information understanding and retention.¹⁸

The role of metaphor, a figure of speech where one thing is described in terms of something else that is very different, has been shown to have a fundamental role in how our conceptual system defines how we think, speak, and act.¹⁹ Metaphors are used in comics to depict a concept as its metaphor visually. For example, in the large volume of graphic medicine produced during the COVID pandemic, dominating metaphors were war – depicting humanity against the enemy virus – and the superhero, where HCPs were depicted as caped heroes.²⁰ Figure 1 shows my attempt at the use of metaphor in a graphic veterinary medicine project I recently worked on. The subject was Chiari-like malformation and syringomyelia in the Cavalier King Charles spaniel, and the goal was to make the association in the reader’s mind that a round head shape was more likely to be associated with this debilitating disease.

The importance of the role of narrative in persuading a reader (and all communication is an act of persuasion) that a fact is correct or that behaviour needs to be changed is increasingly being recognised.²¹ This has been illustrated in an analysis of online anti-vaccination discourse²¹ content that is almost exclusively based on unverifiable individual anecdotes and presented to appeal to the reader’s emotions and invoke fear.²¹ The absence of hard evidence is not a barrier to the content’s credibility for a significant proportion of the audience. For this constituency, the anti-vaccine movement “told a better story”²¹ than the public health scientists. A well-crafted narrative – regardless of the quality of the underlying science – can inspire the reader’s imagination, stoke their passion and provide them with a sense of community, a positive relationship between exposure to a narrative and narrative-consistent beliefs: in other words, narrative persuasion.²²

Traditional health education is based on the knowledge deficit model – the assumption that people will make positive health decisions once they understand the science.¹⁷ This model ignores the cognitive idiosyncrasies that every-

one possesses, including cognitive dissonance, bias, and heuristics. It explains why health messages often do not translate into healthy behaviours and highlights why another approach may be needed.

Obstacles to and pitfalls of graphic medicine

The main obstacles to the widespread use and adoption of graphic medicine in healthcare communications are a lack of awareness of the format and negative perceptions of the genre.¹⁰ One reason for this is a prevailing negative cultural perception in the US (despite being one of the leading markets for comics) that they are children's publications or superhero stories,¹⁰ that it is low-brow and has insufficient academic rigour. Nevertheless, there have been attempts to use the format by key industry stakeholders (such as the CDC's 2011 zombie apocalypse themed "Preparedness 001")²³ or to depict contemporary health issues (the "Surgeon X" series played out in a near-future antimicrobial resistance dystopia)²⁴. However, the consensus is that the graphic medicine genre is under-utilised.¹⁰

This is not the case everywhere. In France, the comic format (the celebrated *Bande Dessinée*) is part of the cultural mainstream. There are online French-language resources such as *SantéBD* (www.santebd.org), an online library of more than 70 free-to-access, expert-reviewed graphic medicine flyers on diverse health topics from influenza to palliative care, and *BD Médicales* (www.bdmedicales.com), a directory of graphic medicine publications.

An additional problem is that graphic medicine introduces elements to the content that are usually avoided in traditional scientific writing: individual anecdotes, politics, aesthetics, and emotion.²⁵ Moreover, as medical science communicators, it is worth bearing in mind that there is a constituency of social science scholars who believe that all things visual are political. "...That is, power-laden, grounded in quotidian ideology and thus also able to contribute to shaping our material and social realities."²⁵ Furthermore, the use of narrative and appealing to emotions – positive or negative – is something that can be done cynically. Any content that is not adequately evidence-based could be considered propaganda, and therefore graphic medicine must be subject to the same rigorous peer review as other forms of medical literature.³



Figure 2. In a rendering by the author, an A0-sized poster "Chiari-like Malformation and Syringomyelia in the Cavalier King Charles spaniel" is prominently displayed in a clinic waiting room.

This is a simple yet effective way to communicate health and welfare advice engagingly and entertainingly.

Application in veterinary medicine: Is there a place for "graphic veterinary medicine"?

At the time of writing, there was no substantial body of literature that reported or evaluated the use of comic style in veterinary medicine and animal healthcare communications. A search on Pubmed returned one relevant paper. Bala and colleagues²⁶ described a study where they used comics in conjunction with virtual reality to teach young people in Portugal about the welfare issues surrounding dogs in rehoming shelters. Otherwise, very few articles on comics about veterinary or animal welfare science are searchable, including my graphic veterinary medicine article on the welfare of brachycephalic dogs, published recently in this journal.²⁷ This is surprising, as animals lend themselves very well to graphic representation and animal images in cartoon form enjoy a broad cultural appeal. Moreover, the use of anthropomorphic animal characters has been described in human graphic medicine to ensure a wider demographic reach¹⁷, an artistic device used for one of the most famous graphic novels: *Maus*, by Art Spiegelman. Considering the applications of comic narrative already applied in human medicine, we can speculate how that may translate into the

veterinary field. The most important and obvious difference between the two domains is that veterinary patients are incapable of communicating their views and feelings verbally, coupled with the constant challenge of anthropomorphism. The stakeholders most qualified to advocate for animals and their needs are veterinary and animal welfare scientists, so their input would be mandatory for any graphic veterinary medicine comic.

Furthermore, there is an educational use for graphic veterinary medicine for all types of surgical, medical, and husbandry interventions on all relevant species. Something as straightforward as placing a comic prominently as a poster on a waiting room wall is a simple way to engage animal owners (Figure 2).

It is arguable that graphic pathography in veterinary medicine, on the other hand, does not exist. It is unlikely ever to be possible to document, with precision, nuance or credibility, a dog's feelings about living with *Diabetes Mellitus*. Nevertheless, the experience of the owner of a dog with diabetes would be an excellent subject for graphic veterinary medicine. The act of euthanasia, probably one of the most emotionally charged of the veterinarian's duties, could be documented in comic narrative pieces



Figure 3. Demonstration of the application of AI in the production of graphic medicine content.

The panels labelled “original version” are taken from the previously published “Everything medical writers need to know about brachycephalic dogs”²⁷ Both panels have been recreated by generating images on aicomifactory.com by inputting a descriptive text.

Note: Only the graphics were generated by AI; the text boxes were subsequently added by the author.

that both foster empathy for the emotional upheaval people suffer with the loss of a pet, as well as being a form of therapeutic bibliography for those who have experienced it.

One area that graphic veterinary medicine has the most potential to impact on animal health and well-being is animal welfare – specifically, animal welfare that is directly impacted on by decisions made by human beings.

A multitude of welfare issues seen in the domestic species are a direct result of how they are bred or kept by their caregivers, often unknowingly. The graphic veterinary medicine format, with its emphasis on image and narrative persuasion is ideal for communicating welfare-positive science, such as that promoted by Human Behaviour Change for Animals (hbcforanimals.com) in a manner that can be culturally and geographically versatile.

Graphic medicine and medical writing

How can medical writers get involved in graphic medicine and graphic veterinary medicine, particularly if they have little or no experience in creating graphics? As mentioned previously, all healthcare comic-style content needs to be correctly evidence-based, fact-checked, and referenced, just as with any other science-based publication. Ideally, the same material should also undergo a target audience review to ensure cultural relevance.²⁸

For those medical writers who can draw or are interested in learning how, there is a range of graphics software (Adobe Illustrator, Affinity Designer, Canva, Figma, amongst others). There is also a host of massive open online courses where one can learn how to use the software or work in various design styles. At least a basic knowledge of graphic design principles is recommended, and it will take time to get to a polished standard. Alternatively, a graphic designer or comic artist can be commissioned to provide the graphics. If the size of the project

justifies this, this can be an excellent way to collaborate with creative professionals.

Artificial intelligence (AI), as in so many other domains, promises to make comic-style content creation much more accessible. Numerous AI programs that generate comic artwork from a text description already exist online, including leonardo.ai, comica.ai, aicomifactory.com, and comicsmaker.ai. The latter has multiple useful features, including creating characters from sketches, a dynamic pose tool for characters and character training the AI to keep depictions of a character consistent. Figure 3 records my attempt to reproduce two panels from my graphic veterinary medicine article on brachycephalic dogs using AI-generated images. Although not glitch-free (the dog in the first panel has three upper canine teeth), I was impressed by the results. Whether they are an improvement on the original or not will be a matter of personal taste. Furthermore, the software is still limited, which can mean important nuance is lost (such as the depiction of the stenotic nostrils in the first panel). Nevertheless, there is no doubt this technology will improve rapidly and make the production of graphic medicine and graphic veterinary medicine content much more efficient.

A great advantage of the comic format is its versatility for digital publication and sharing on social media. This can be enhanced by the recent emergence of motion comics, where dynamic elements are added to an otherwise static comic image, making the content much more palatable for the moving image culture that currently prevails.²⁹

Conclusion

This article has argued that comics, graphic medicine, and now graphic veterinary medicine have a legitimate place in healthcare communications. The genre introduces elements to science communications that are unfamiliar to the traditional scientific discourse, namely individual anecdote, storytelling, and emotive engagement. However, when one considers the increasing prominence of qualitative research in the health sciences and trends towards shared-decision making and patient-centred care, the integration of graphic medicine toward the mainstream is a natural evolution. There is certainly a parallel role for graphic veterinary medicine particularly in animal welfare, and improving the lives of animals beyond the clinic.

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Disclaimers

The opinions expressed in this article are the author’s own and not necessarily shared by EMWA.

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The author is founder of www.graphicveterinary.org and is a freelance medical writer who provides graphic medicine and graphic veterinary medicine services.

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