

# **Using pictures to improve health communication**

**Peter Houts, PhD**

**In this talk I will discuss the need for effective communication between health professionals and patients and the potentially important role that pictures can take in insuring accurate and effective communication**

# **Why communicating health information is important in patient care**

**Effective communication of health information is essential, for several reasons:**

**Helping patients to make informed patient decisions about what treatments they want or need.**

**To insure correct and timely actions on the part of patients and family caregivers to manage illness at home and for them to obtain professional help when needed.**

**Patient and family caregivers' quality of life built on a foundation of self-efficacy and autonomy. Without access to information about managing their illness, patients and family members are dependent on staff to tell them what to do. This increases feelings of dependence, passivity, and helplessness and requires that they navigate the health care bureaucracy to obtain answers to their questions.**

# **Why communicating health information is important**

- **To address these problems, they need access to a base of knowledge of what they can do and, very importantly, of when they have done enough. Family caregivers are especially likely to be concerned because they feel they have not done enough when, in fact, they have done everything that could reasonably be expected of them.**

# **Four elements of effective communication of health information**

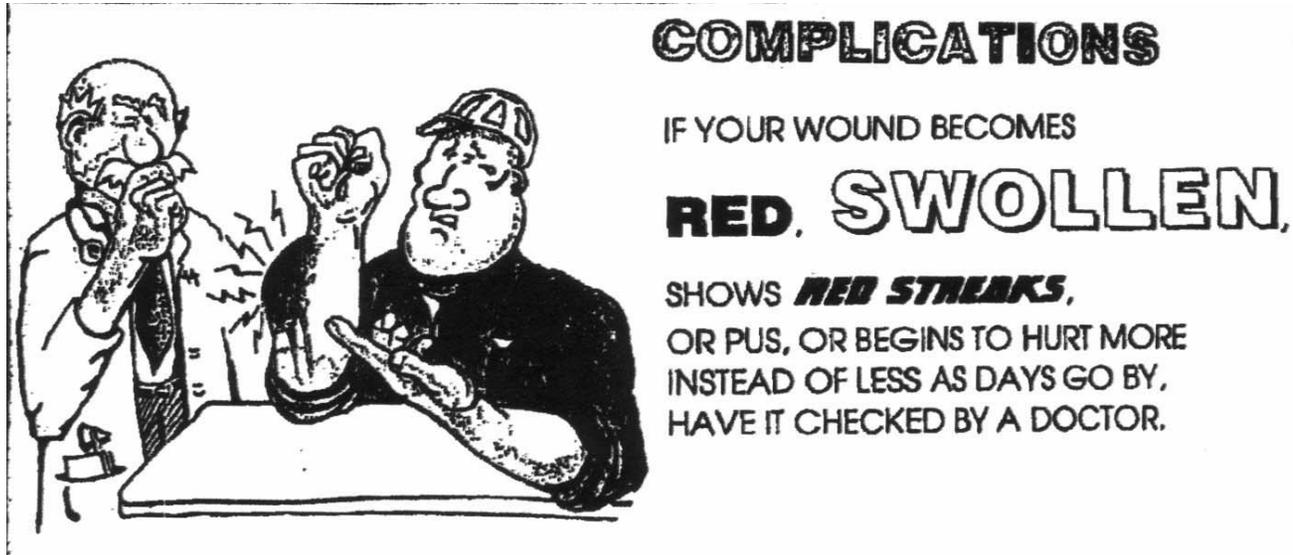
- **There are four aspects of communication that are necessary for effective communication of health information. They are Attention, comprehension, recall, and acting on the information – sometimes called adherence. I will discuss each of these in turn.**

# How pictures affect **attention** given to health communications

- **The first step in the health communication process is for the patient and or family caregiver to pay attention to the message. Many times excellent written instructions are ignored or not read by people who need the information. Often verbal instructions are not heard or understood by patients and family members who are distracted and preoccupied. So the first question is whether pictures help to draw attention to health communications.**
- **Advertisers clearly believe that pictures draw attention because they are used extensively in advertising. If you reflect on what draws your attention when reading a magazine or newspaper, I'm sure you agree that pictures are among the first things you notice.**
- **The power of pictures to draw attention to health communications was demonstrated clearly in a study by Delp and Jones in the emergency room of an inner city hospital. Patients receiving treatment for lacerations were, at the point of discharge, given written instructions for what they should do to care for their wounds after returning home. Half were randomly given just text and the other half received the same text plus pictures that illustrated the information in the text.**

# How pictures affect **attention** given to health communications

- **Example picture**



- **Subjects were interviewed by phone three days later and asked if they had read the instructions. Patients receiving handouts with pictures were significantly more likely to read the handouts - 98% compared to 79%**

# **How pictures affect **comprehension**.**

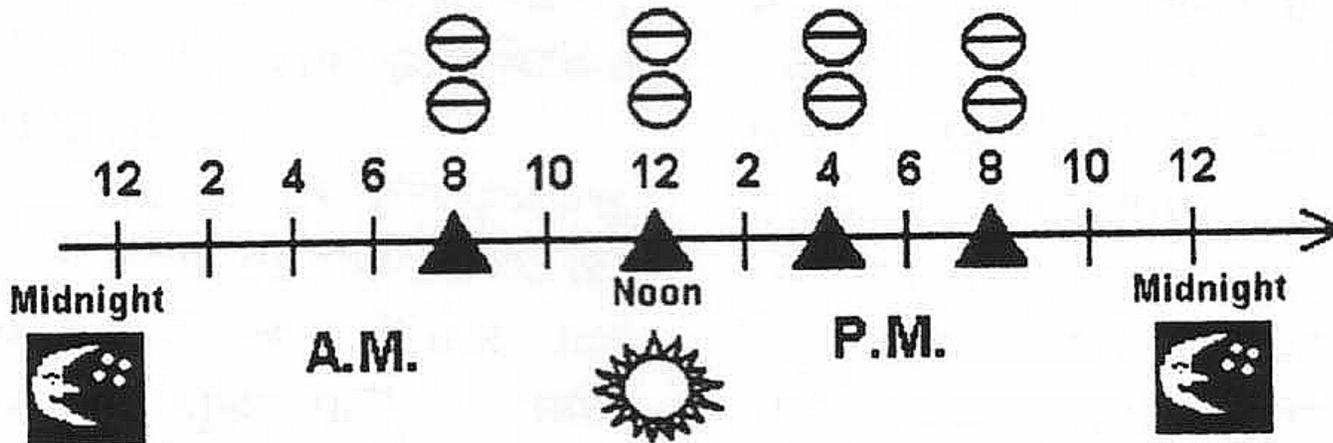
## **Are pictures worth a thousand words?**

- **The next question is whether pictures help people understand a message – in other words – is a picture worth a thousand words. The answer is sometimes.**
- **When explaining something that is inherently spatial, a picture can be worth a thousand words. For example, explaining how to give an injection can be done more simply and more effectively with text plus pictures than with text alone.**
- **Under some circumstances, pictures alone can be very effective – but only if the viewer has requisite background to interpret the pictures correctly. Without that background, the pictures may be confusing or meaningless. For example, if people from a third world country, who never saw a syringe, were to see just pictures of an injection, they would be confused.**

# How pictures affect **comprehension**.

## Are pictures worth a thousand words?

- Pills and time of day are examples of information that can be represented visually – as you can see in this example. Here a great deal of information is summarized in this drawing. Extensive writing would be required to cover the same information.



# **How pictures affect **comprehension**.**

## **Are pictures worth a thousand words?**

- **There are times when pictures can confuse the viewer and interfere with comprehension. This is when to concepts or vocabulary are beyond the viewer's understanding. When this happens the viewer may guess what the pictures mean – often incorrectly.**
- **Pictures are not a substitute for complex or abstract explanations. They must build on a foundation of clear, simple language.**

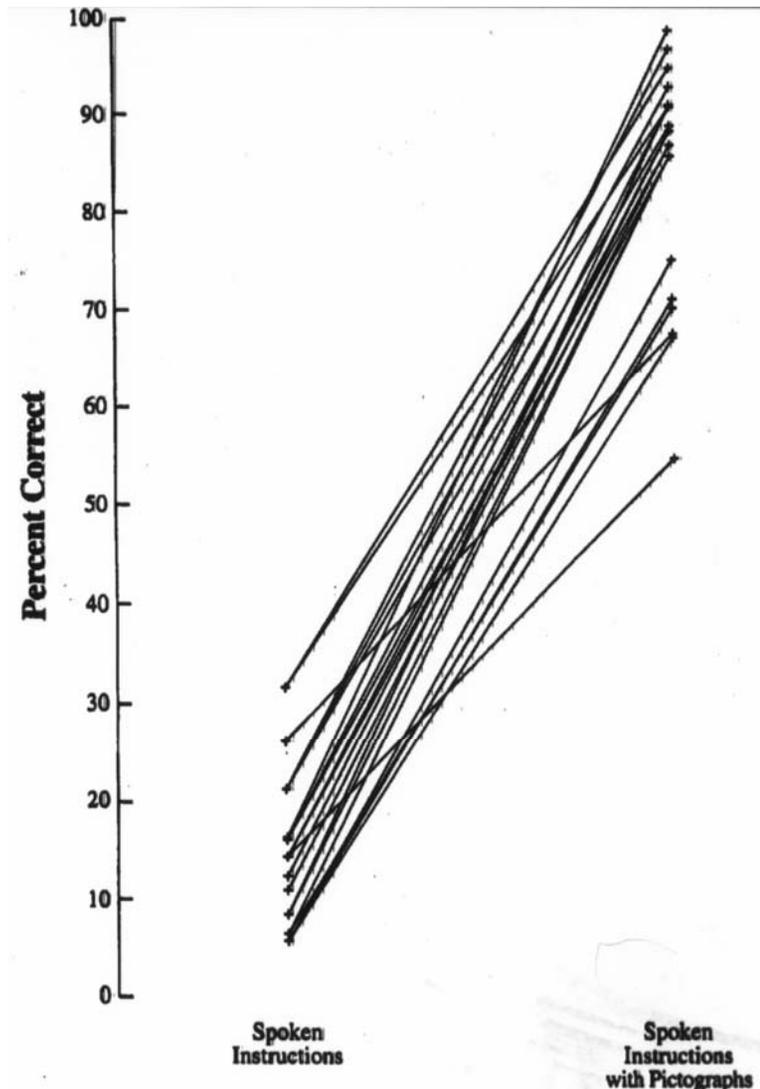
# How pictures affect **recall**

- **The strongest and most widely documented effect of pictures is on recall. Pictures paired with spoken or written text will increase recall of the text.**
- **The effect of pictures on recall has been extensively studied by educators and literally hundreds of studies have shown that recall is enhanced when pictures are linked to text. Education researchers even have a name for it: they call it the pictorial superiority effect.**
- **The effect has been shown with both written and spoken text – but the effects are greater for spoken text. This has important implications for communicating with people who cannot read. If they can understand what you say orally, their recall of that information will be greatly improved if your explanation is accompanied by pictures.**

# Recall of spoken directions with and without pictures

This effect is shown dramatically in this study where people were read a list of medical instructions – some with and some without pictures. Each subject heard some instructions with pictures and some instructions without. Their recall of the two types of instructions were markedly different. In the graph on this slide each person's recall under the two conditions is connected by a line. Average recall without pictures was 15% and with pictures was 85%.

■Houts, PS, Bachrach, JT, Witmer, CA, Tringali, JA, Bucher, RA, Localio, RA “Using pictographs to enhance recall of spoken medical instructions” Patient Education and Counseling, 35: 83-88 (1998)



# **Recall of spoken directions with pictures as cues**

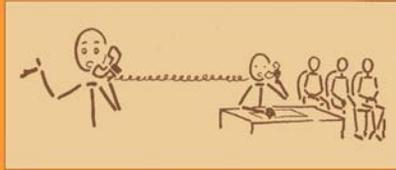
- **A follow-up study showed that people with less than 5<sup>th</sup> grade reading skills remembered 72% of 192 medical instructions for month. (We used this large number (192) instructions because managing a serious illness requires remembering a large number of instructions.)**

# **Recall of spoken directions with pictures as cues**

- **Cued recall is when people see the picture when they first hear the text and then, later, see the same picture to help them remember what they heard. (Cued recall was used in the recall study on the previous slide.)**

**Clinically this means that people who cannot read and have to rely on memory of what health professionals tell them could substantially improve their memory of what they were told by showing them pictures along with the oral explanations and then giving them the same pictures to take home and serve as reminders of what they heard.**

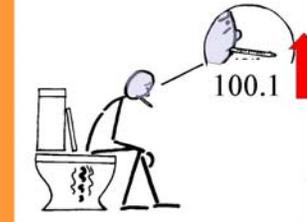
# Recall of spoken directions with pictures as cues



When to call the doctor



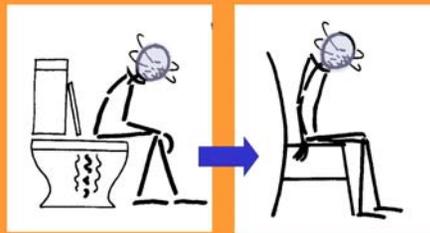
Stomach pain with diarrhea



Diarrhea with a temperature of 100.1 or higher



Blood in the diarrhea stool



Dizziness during and after diarrhea



Diarrhea and vomiting in the same day

Here are examples of the pictures used in the cued recall studies discussed in the previous slides. Subjects viewed the pictures (without text) and listened to spoken explanations of what each picture meant. One month later they were shown just the pictures and asked what they meant.

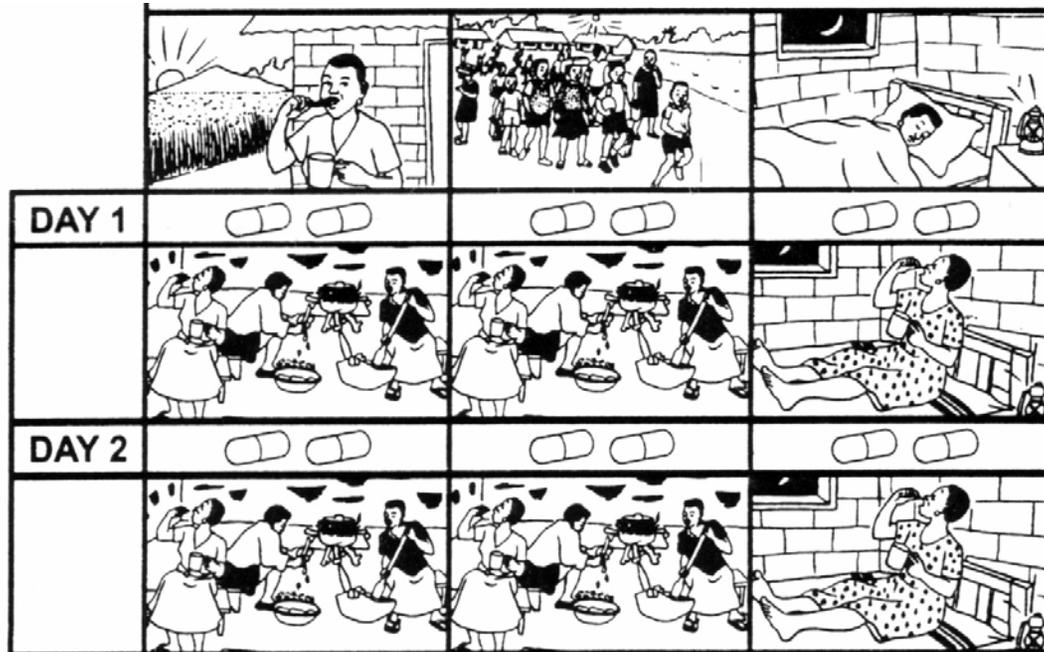
# How pictures affect **behavior**

- **And now to the most important outcome of all – do pictures affect health behavior – that is adherence to medical instructions. The answer is complex – as you will see in a moment. The Delp and Jones study that I talked about earlier – people with lacerations – showed a marked effect of pictures on following instructions for managing their lacerations at home – 77% adherence compared to 54% without pictures.**
- **What is exciting about their findings is that there was a trend for a greater difference between experimental and control groups among patients with less than a high school education. While this did not reach statistical significance, the trend is encouraging and should be studied further because it suggests that pictures are of greater help to people with less education.**

# How pictures affect **behavior**

- **Another important study showing the effects of pictures on health behavior was done by Ngoh and Shepherd in rural Cameroon. They found that illiterate patients who received pictures along with oral explanations were significantly more likely to take the medicines as prescribed – 90% adherence versus 78% compared to illiterate patients who received only oral instructions.**

# How pictures affect behavior



- Here is a copy of one of the pictures used in the Ngoh and Shepherd study. The drawings depict people doing their normal daily activities and linking this to when pills are to be taken. Ngoh and Shepherd emphasize the importance of making the pictures meaningful to the people who use them. They did this by using local artists and by consulting with women in the community in deciding what to include in the pictures. There are many studies showing the importance, particularly when working in third world countries, of making the pictures relevant to the local cultures.

# How pictures affect **behavior**

- **BUT**

Now come the qualifiers. Pictures do not always have their intended effects. Perrine and Heather compared donations to a local humane society when requests were accompanied by a picture of cute puppies and found more donations with the pictures than without. On the other hand, Isen and Noonberg reported the opposite results when asking for donations with and without pictures of severely handicapped children.

These findings suggest that how people respond emotionally to the picture affects how the picture influences their behaviors. More research is needed here, but these findings suggest that positive emotional responses have positive effects on behavior and visa versa.

# Fortuitous discovery

- **Work I did with the American Geriatrics Society led to a fortuitous discovery that has important implications for using pictures in communicating health information to people with low literacy skills. We discovered, in the process of writing captions for pictures of actions people should take, that it was possible to write captions at a very low reading level – second grade. Furthermore, second grade readers are able to generalize from what they see in pictures to their own lives. This means that a second grade reader can see a picture showing someone taking actions to deal with a health problem – along with a caption that explains what is happening in the picture – would understand that if he or she faced a similar situation, would take similar actions.**
- **Up to now health educators have aimed at fifth grade reading level as their goals for simple communications. By adding pictures with simply written captions of actions people are to take, it is now possible to communicate effectively with people with only second grade reading skills. They may not understand the complicated reasons for why they should take certain actions, but they will understand what it is they should do.**

# Fortuitous discovery

- **To see an example of these kinds of captions, go to this web site. Captions beginning on page 9 have been reviewed by second grade teachers to insure that people at that level of skill would understand what is happening in the picture and be able to take similar actions themselves.**
- **[http://www.frycomm.com/ags/eldercare/caregiving\\_handout\\_MSWord.pdf](http://www.frycomm.com/ags/eldercare/caregiving_handout_MSWord.pdf)**

**Captions at second grade reading level begin on page 9 of that handout**

# Fortuitous discovery



**Mary cannot wake her mother so she calls the doctor right away.**

**Here is an example of a picture with a caption that can be understood by someone reading at a second grade level.**

# Summary

- **In summary, research has shown that pictures can increase the number of people who read medical instructions. Pictures can improve comprehension especially when information about spatial relationships is presented. Pictures can most definitely improve recall of what was read or heard. And, most importantly, pictures have the potential for improving adherence – provided that viewers’ emotional responses are positive. Furthermore, research suggests that pictures have the potential for communicating health instructions to people with low literacy skills – either by helping them remember oral instructions or enabling people with only second grade reading levels to understand what actions they are to take. These conclusions are tentative – as are all research findings. But the evidence is strong enough to indicate that research in this area has the potential for significantly improving health care.**

# Relevance for health education

- **Implications for research**
- **More research is needed to specify the parameters that affect how pictures influence health behaviors – for example, age, stress, and dementia. We also need to know more about the conditions under which people with very low reading skills can use pictures effectively.**
- **Fortunately, research using designs like those used by Delp and Jones – randomly assigning subjects to receive just written or written plus pictures – is acceptable to human subject committees that are concerned with patient rights and also yield results that are clearly understood and interpreted.**

# Relevance for health education

- **Implications for patient care**

**First, there is a growing body of education materials that use pictures effectively. Many deal with helping people take medications as prescribed. Therefore, health professionals should seek out and use these already developed materials as much as possible.**

- **Second, health educators who develop materials should apply what we know about using pictures effectively in the materials they develop. Pictures should be closely linked to the text they represent so that readers or listeners connect the two in their minds. They should be simple with a minimum of distracting details. People with low literacy skills are especially vulnerable to being distracted by details that do not relate to the picture's purpose.**

**Pictures that are included simply to make the viewer “feel good” should be avoided because they contribute nothing to changing behaviors and could confuse people with low literacy skills.**

- **And third, health professionals can make drawings while they are talking to patients. These can be very simple – even crude. But, if the patient takes the drawings home, they will be reminders of what the health professional said.**