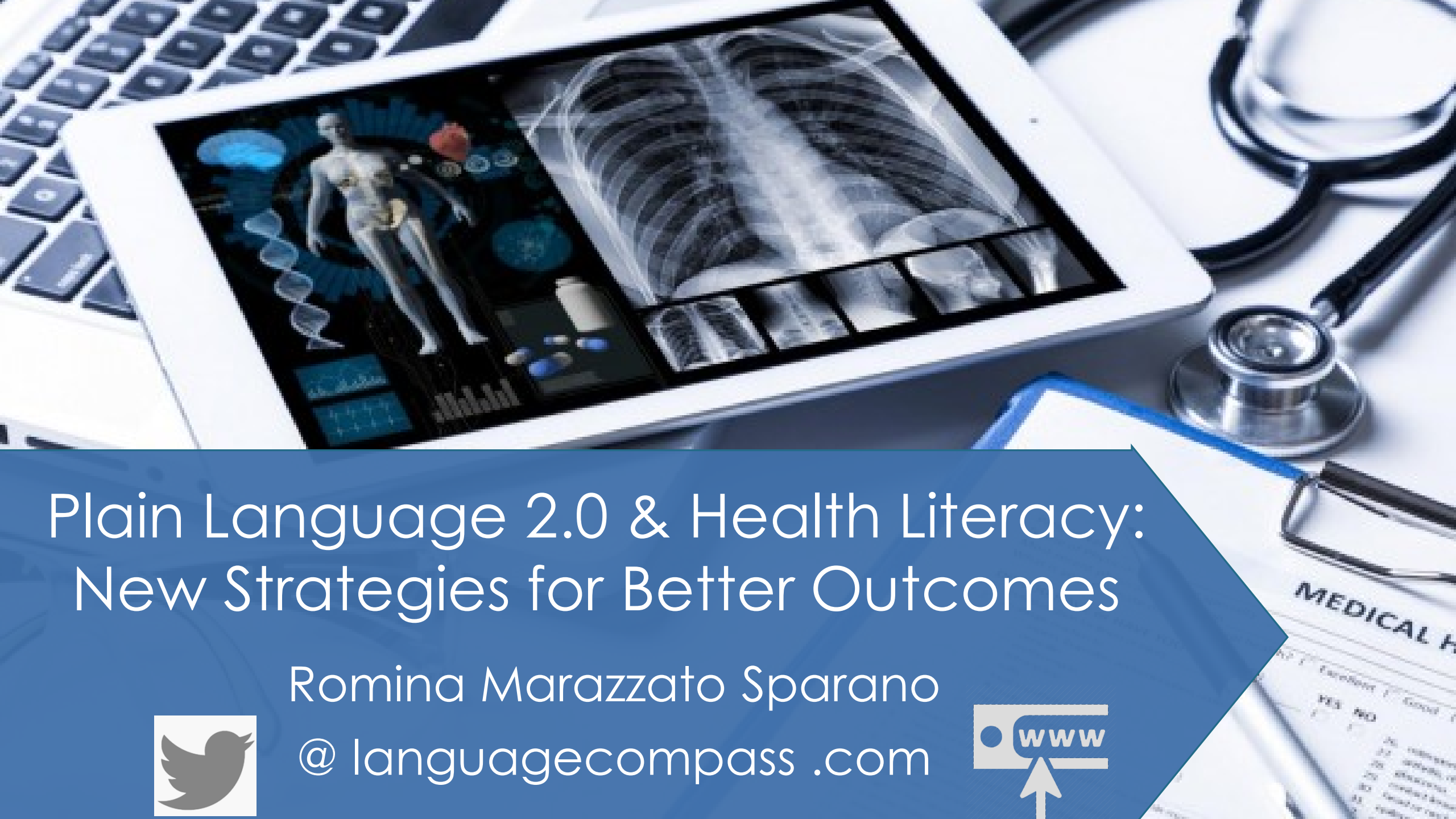


A composite image featuring a medical stethoscope, a laptop keyboard, and a tablet. The tablet displays a human figure with internal organs highlighted in blue, a DNA double helix, and a chest X-ray. A blue banner with white text is overlaid on the bottom half of the image.

# Plain Language 2.0 & Health Literacy: New Strategies for Better Outcomes

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# From Practice to Research

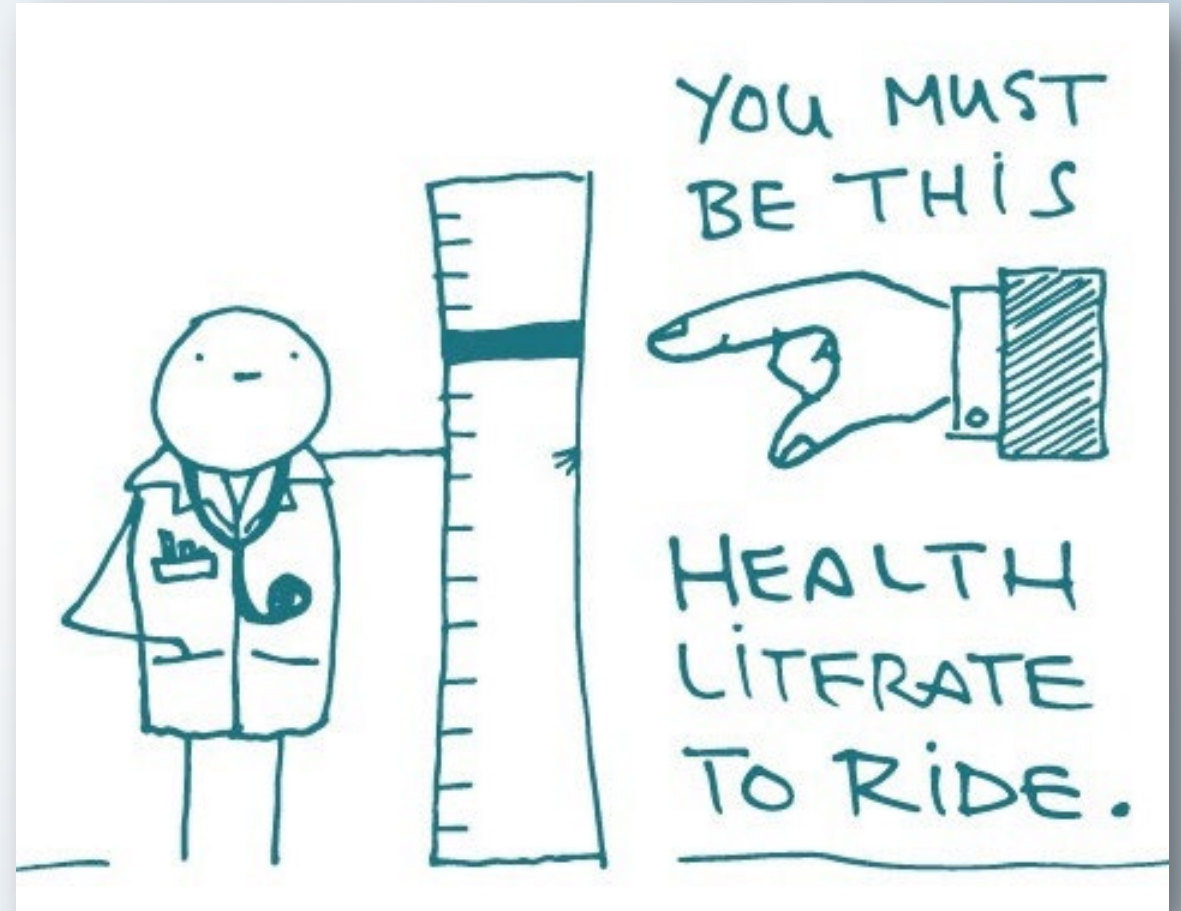


*“Effects of textuality revisions to original and plain language texts on more- and less-skilled readers”*



# Agenda

1. Definition & New Definition
2. Context & Numbers
3. Plain Language strategies
  - > Deeper Dive into:
    - **Textuality:**  
grammar, cohesion & coherence
    - ≠ Adequacy:  
suitability to the audience





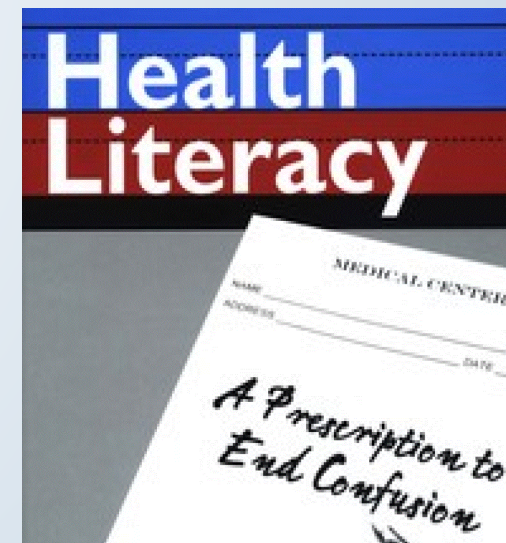
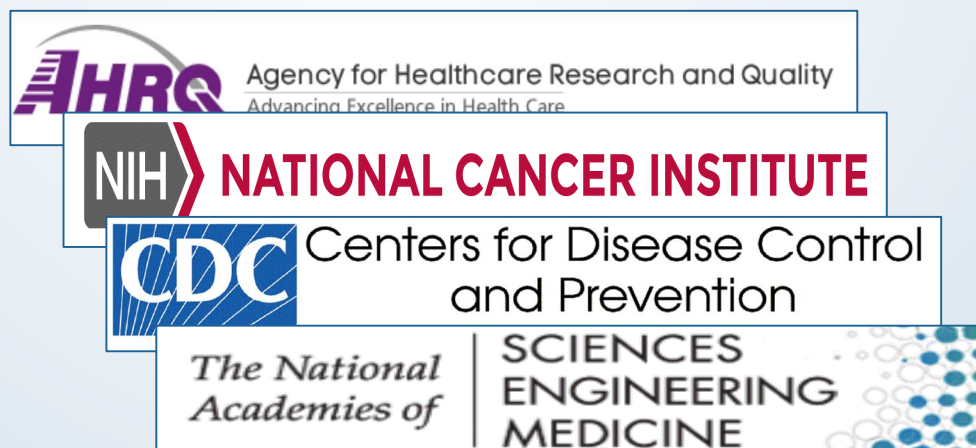
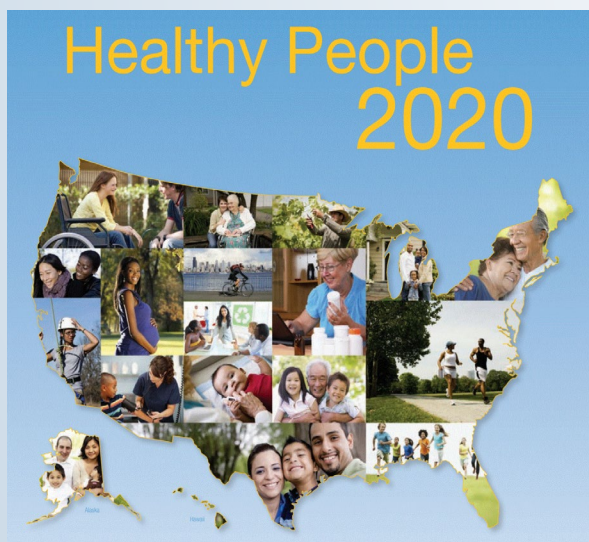
# Health Literacy

- Obtain
- Process
- Understand



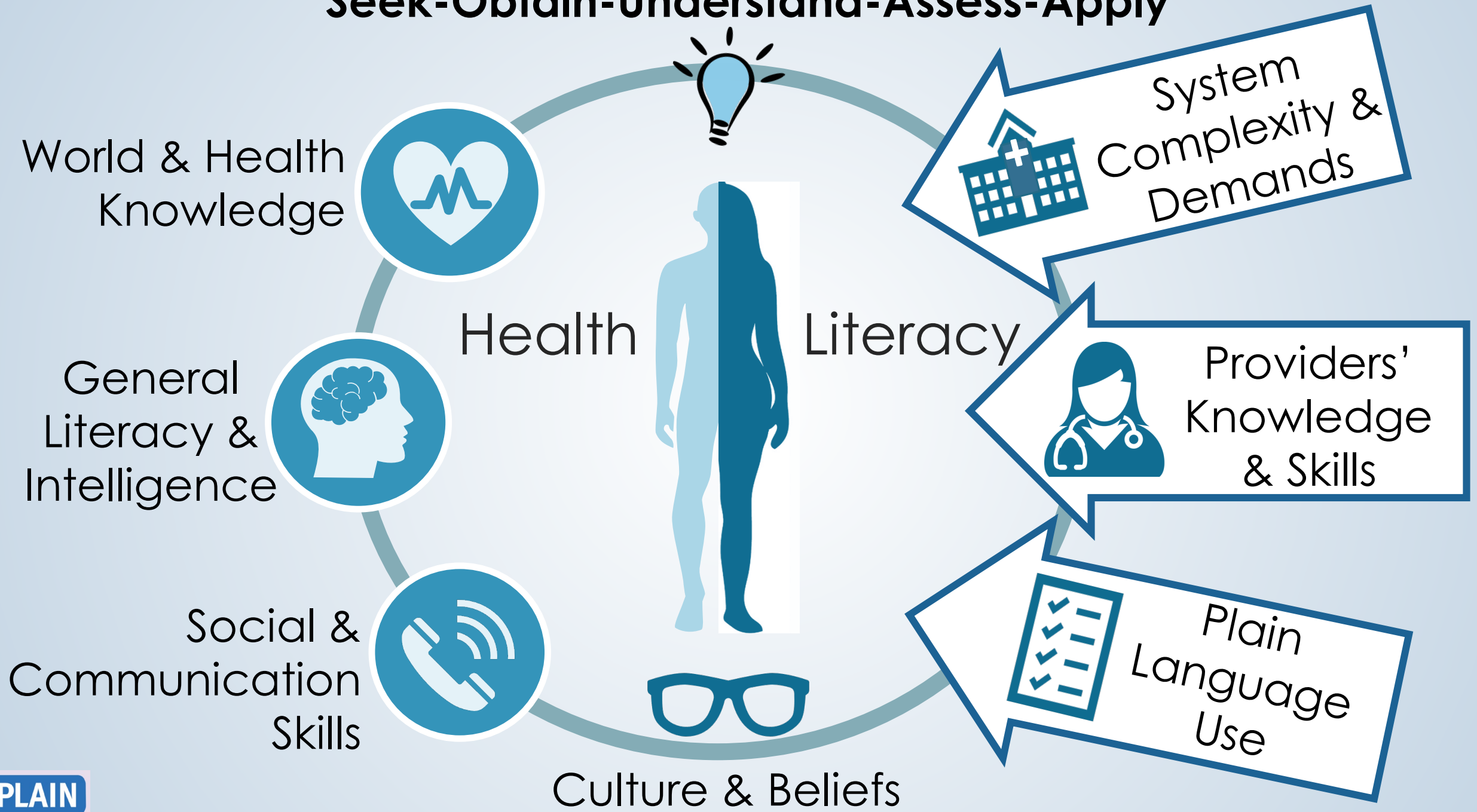
Solicitation for Written Comments on an Updated Health Literacy Definition for Healthy People 2030

basic health information & services  
needed to make  
appropriate health decisions



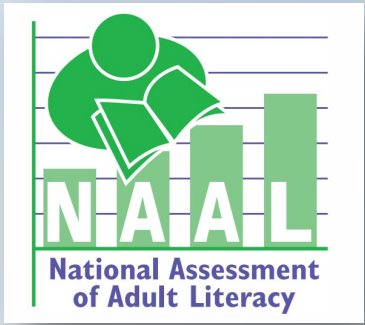


# Seek-Obtain-Understand-Assess-Apply





# Health Literacy Levels



**Below Basic**

**14%**

Identify  
single item

**Basic**

**21%**

Determine  
single item

**Intermediate**

**53%**

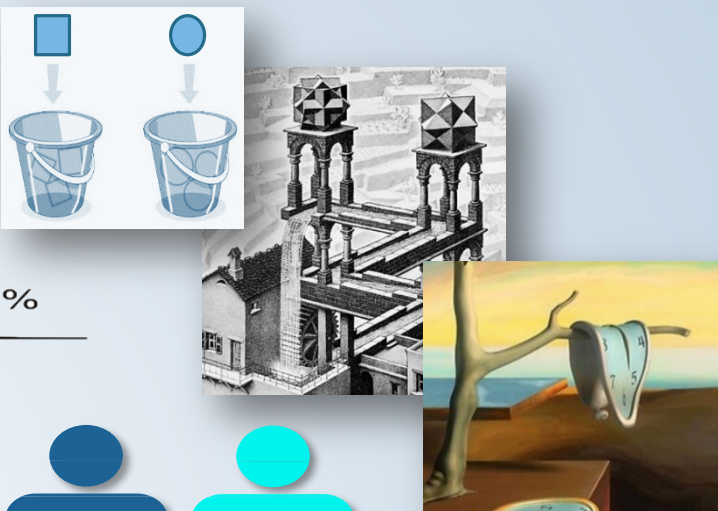
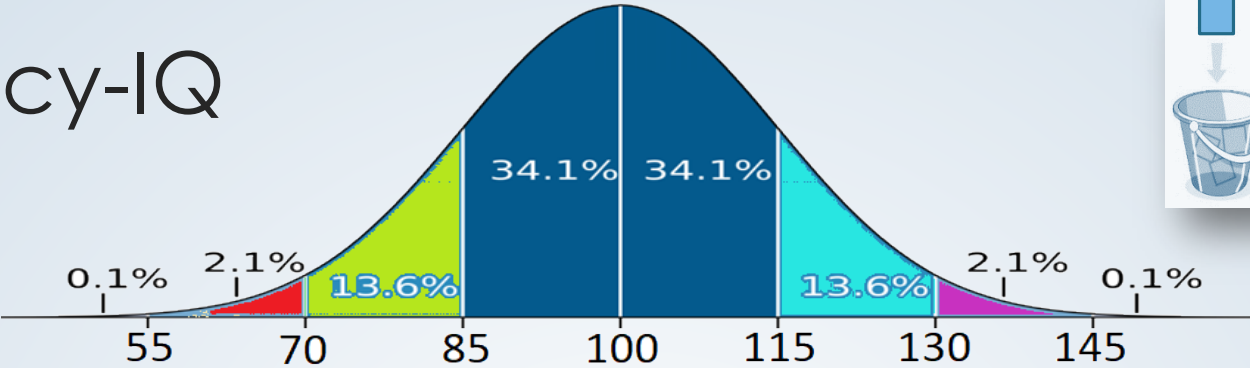
Make an  
inference

**Proficient & Above**

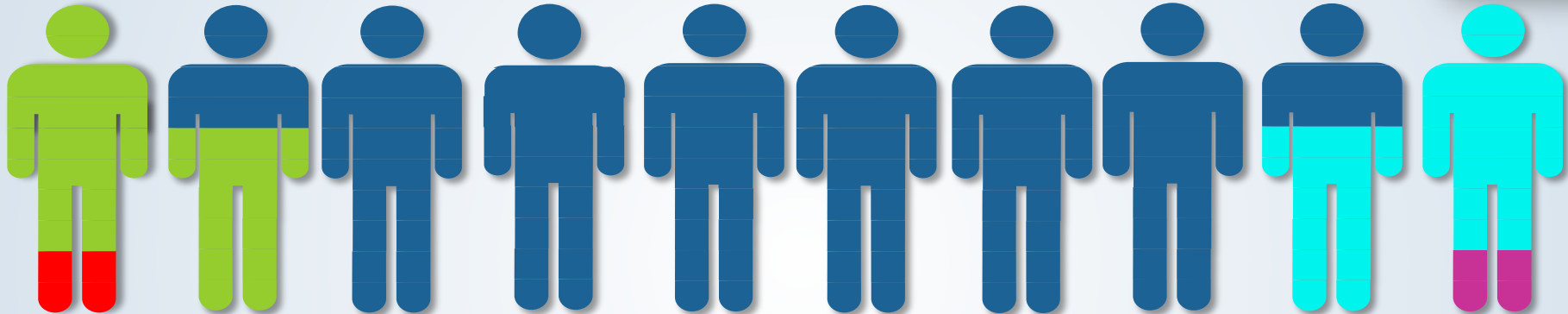
**12%**

Make multiple  
inferences

# Health Literacy-IQ Mismatch



IQ:



**2% Disability    14% Low                      68% Normal                      16% Above Normal**

HL:



**14% Below    21% Basic                      53% Intermediate                      12% Proficient & Above**



# Dig Deeper: into the inner workings of text

Vaginal Hysterectomy is a surgical procedure to remove the uterus (womb) through the vagina. Vaginal hysterectomy is a surgical treatment for many different gynecological conditions including: 1) Fibroids – Benign tumors in your uterus that can lead to persistent bleeding, anemia, pelvic pain, pain during intercourse and bladder pressure. 2) Gynecological cancers – Vaginal hysterectomy may be recommended by your Doctor for treatment of cervical or endometrial cancer. 3) Uterine prolapse – When pelvic supporting tissues and ligaments get stretched out or weak, the uterus can lower into the vagina, causing urinary incontinence, pelvic pressure or difficulty with bowel movements. Removing the uterus and repairing the surrounding ligaments can ease these symptoms. 4) Abnormal Vaginal bleeding – When medication or a less invasive surgical procedure does not control irregular, heavy or very long periods, hysterectomy can resolve the problem.

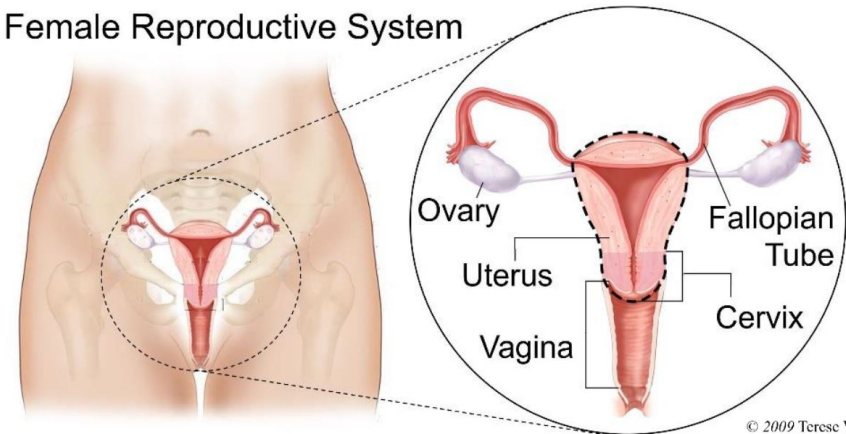
The type of hysterectomy you have will depend on your personal circumstances and will be discussed with you by your gynecologist before your operation. Sometimes at the same time of vaginal hysterectomy a Salpingo-oophorectomy (removal of one or both ovaries and fallopian tubes) may be performed. Before Your Surgery You will be asked to come to the Pre-Admission Clinic or you will be called by telephone at home. The Pre-Admission Clinic nurse will ask you about your health and give you information about having surgery. Every woman has different needs and recovers in different ways. You will need a general anesthetic for a Vaginal Hysterectomy. People who are fully prepared and active in their care have a smoother and faster recovery after surgery. You will be in hospital for 1 day. If your surgery has been more extensive then discharge will be after 2 days. Before your surgery focus on building your strength and staying as active as you can to speed your recovery. Low impact

## What is a vaginal hysterectomy?

Vaginal hysterectomy is a surgery to remove the uterus (womb) through the vagina. The uterus is where a baby grows when a woman is pregnant. After a hysterectomy, you will no longer have menstrual periods and cannot become pregnant.

In a laparoscopic assisted surgery, the surgeon uses the help of a tiny camera called a laparoscope.

### Female Reproductive System



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## Why do I need a hysterectomy?

You may need a hysterectomy to treat one of the following conditions when medications or other treatments have not worked:

- **Fibroids:** These are benign tumours in the uterus. A benign tumor is a growth of abnormal cells that does not destroy healthy tissue. However, it can press against other organs and cause problems.





# Dig Deeper! Better Plain Language Writing

 Audience

 Purpose

 Wording

 Structure

 Design

Adequacy + Textuality



Grammaticality

- Syntax
- Word Order
- Punctuation



Connectivity

- Cohesion
  - Lexical
  - Grammatical
  - References
  - Recasting
  - Connectors
- Coherence
  - Subject matter
  - Information Flow
  - Relationships

# Dig Deeper! More than lay term substitutions

Migraine is an incapacitating disorder of neurovascular nature, characterized by paroxysmal attacks of unilateral throbbing headache and autonomic nervous system dysfunction, including sensitivity...

Migraine is a disabling condition that affects nerves and blood vessels. Its main symptom is sudden pounding pain usually on one side of the head. Migraine also includes other symptoms like sensitivity...

Migraine is a type of **headache** that:

- causes pounding pain, often on one side of the head, and
- includes symptoms like sensitivity to sound, light, or smell.





# Dig Deeper! Go Beyond Bulleted Advice

- **Write as if you were speaking?**

- Planned vs. Extemporaneous
- Tight vs. Loose Structure
- Product vs. Process

- **Use active voice?**

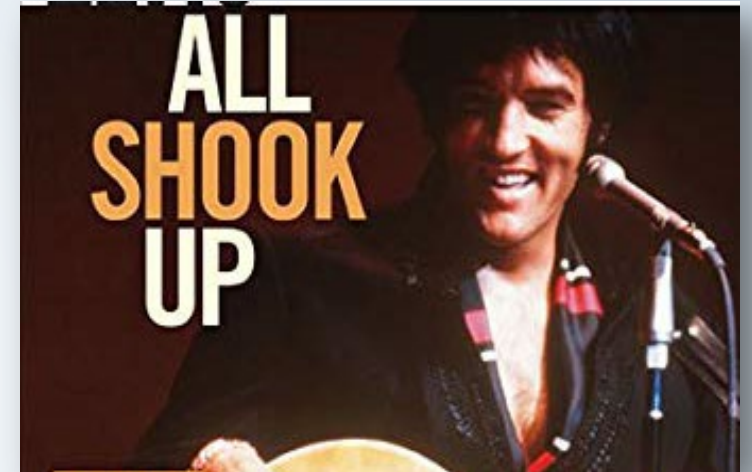
Charrow & Charrow on passives:  
*“do not impede comprehension”*

- **Apply readability formulas?**

Not a clear measure of comprehensibility

- **Replace jargon with lay terms?**

More than jargon substitution!



“someone or something  
has shaken me all up”

**?!!!**



Grammaticality: “Miss stakes wee May knot sea”

We advised the patient to force fluids through his interpreter.

Migraines strike twice as many women as do men.

The patient was side-swiped by a car riding a bicycle.

Administer 4IU insulin.

41 units?

4 international  
units?





## Cohesion: strategies to shorten & link sentences



Several techniques are available for removal of large colorectal polyps found in the early stages which are oncologically and technically successful for most such polyps and remain one of the most effective interventions for colorectal cancer prevention.

Several techniques are available to remove large colorectal polyps early. Early removal of these polyps remains one of the most effective interventions for colorectal cancer prevention.







= Cohesion ≠ Adequacy



Several techniques are available to remove large colorectal polyps early. Early removal of these polyps remains one of the most effective interventions for colorectal cancer prevention.

Doctors use different techniques to remove large polyps (lumps or growths) from the bowel early. Taking away these polyps early is one of the most effective ways to prevent colon cancer (cancer in the bowel).





# Coherence: Flow & Hierarchy

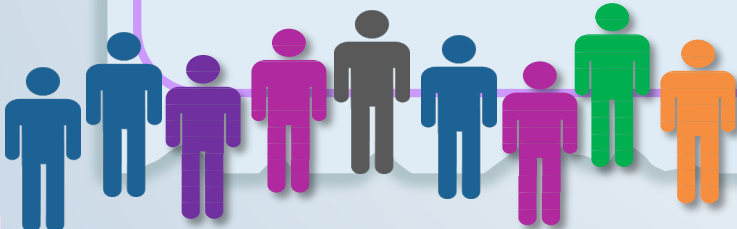


## Theme

Participants who were assigned to a treatment group

These visits

Regardless of group assignment, all participants



## Rheme

will make 7 visits over a 7-week period.

will be paid for by the study.

will be contacted at 2, 6, and 12 months after the start of the study for about a 20-minute telephone interview

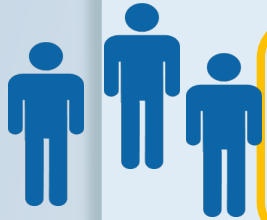
| Readability                |      |
|----------------------------|------|
| Flesch Reading Ease        | 53.2 |
| Flesch-Kincaid Grade Level | 10.2 |
| Passive Sentences          | 0.0% |



= Issues ≠ Adequacy

## Theme

## Rheme



If you are in a treatment group

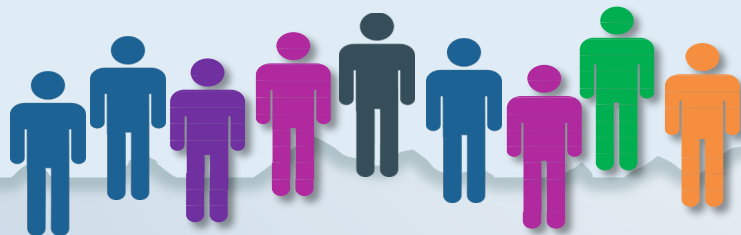
you will make 7 visits over a 7-week period.

The study

will pay for these visits.

No matter which group you are in, we

will call you at 2, 6, and 12 months after the start of the study for about a 20-minute telephone interview



### Readability

Flesch Reading Ease

81.9

Flesch-Kincaid Grade Level

5.6

Passive Sentences

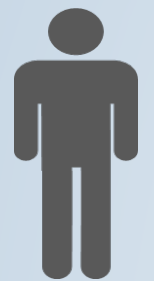
0.0%

PLAIN





# Coherence + Adequacy (lay version)



## Theme

You

## Rheme

will answer three phone surveys at 2, 6, and 12 months after you join the study.

These surveys

will last about 20 minutes each.

If you are in a treatment group, you

you will also make office visits once a week for 7 weeks.

These visits

will be free of charge.



### Readability

Flesch Reading Ease

80.0

Flesch-Kincaid Grade Level

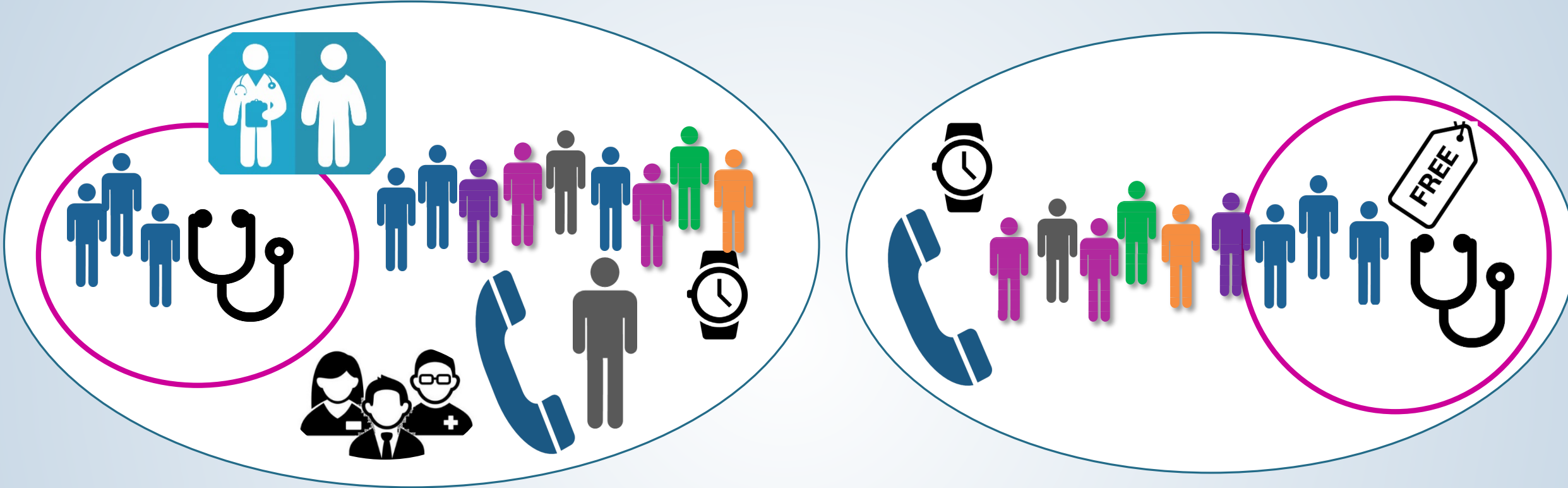
5.3

Passive Sentences

0.0%

PLAIN

# Before & After: Streamlining the message



| patients | actions | when   | cost         |
|----------|---------|--------|--------------|
| all      | survey  | months | time         |
| some     | visit   | weeks  | money (free) |



= Coherence ≠ Adequacy (technical version)

## Theme

## Rheme

All participants

answer three phone surveys at 2, 6, and 12 months after joining the study.

These surveys

last about 20 minutes each.

Participants in a treatment group

also make office visits once a week for 7 weeks.

These visits

are free of charge to participants.

Readability

Flesch Reading Ease

80.0

Flesch-Kincaid Grade Level

5.3

Passive Sentences

0.0%



# In HL Audience $\neq$ Interlocutors $>$ Versioning



Providers



Patients



Caregivers



Distressing &  
Time-sensitive  
Situations

Disabilities

Limited  
Schooling

Second  
Language

Situational  
Literacy

Interests

Expertise

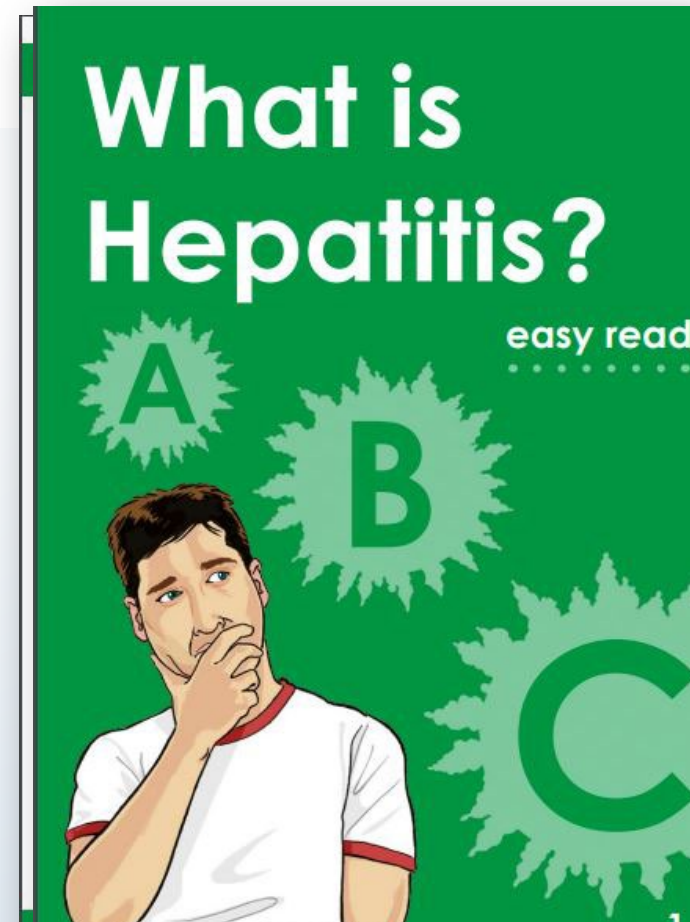
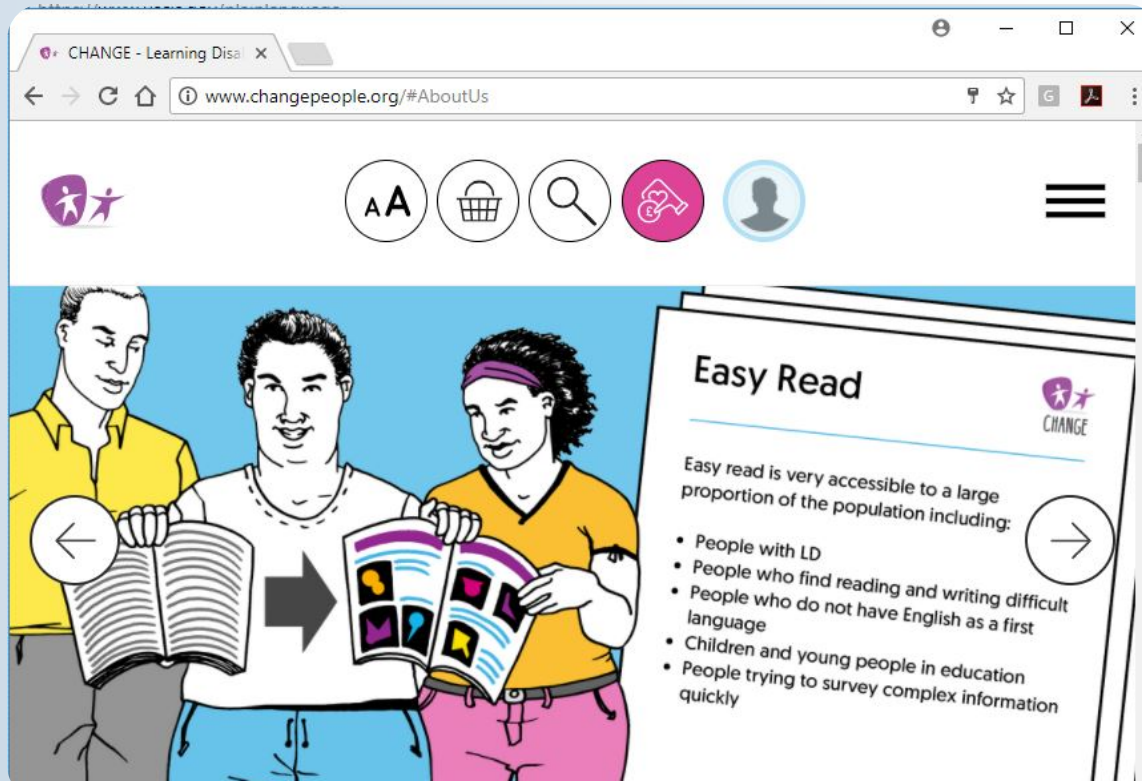
# Adequacy + Textuality Examples

## What are polyps?



Harvard Health  
HARVARD MEDICAL SCHOOL

A colonoscope, the flexible device used to inspect the colon, can grab and snip off polyps if they are relatively small. The timing of follow-up depends on what kind of polyps the doctor finds, how many, and how big they are.

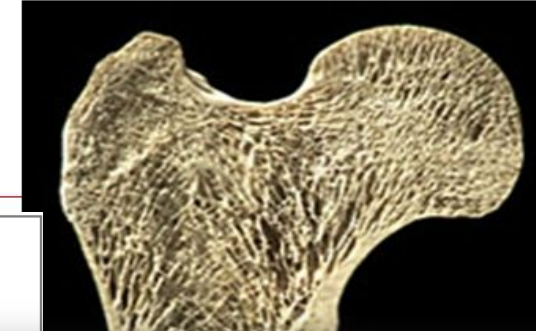




# Microscopic structure

- Cancellous (spongy) bone
  - Found sandwiched between

## Bone Structure

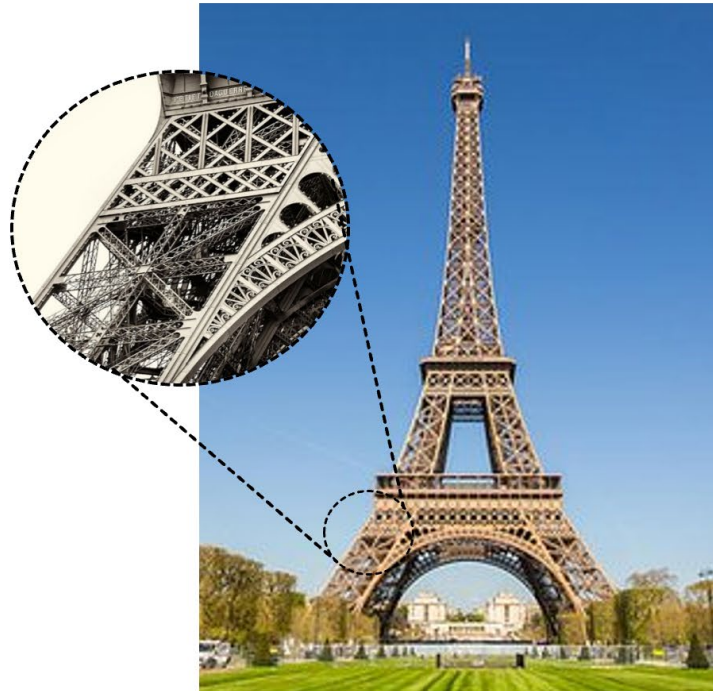


### Trabecular or Cancellous, Bone

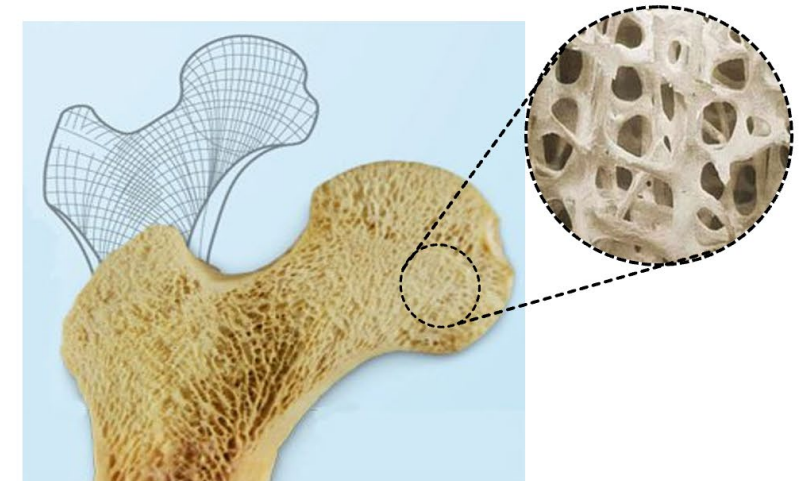
- honeycombed or spongy
- 20% mass & 80% surface area



### Trabecular Bone



- Structural support & flexibility
- Lighter than compact bone



Trabeculae: 3D Lattice

# Summary

1. Health Literacy encompasses:
  - Individual Knowledge and Skills
  - Providers' Knowledge and Skills
  - System Features
  - Plain Language Use
2. Room for improvement in every dimension
3. In Plain Language > Strategies for a Deeper Dive into:
  - **Textuality:**  
grammar, cohesion & coherence
  - **Adequacy:**  
suitability to the audience





# Dig Deeper! Better Plain Language Writing



Audience



Purpose



Wording



Structure



Design

Review for



and adequacy

# Thank you!

~~In the event of trials and tribulations with this presentations, please do not hesitate to approach the speaker. She will gladly engage in dialog with you!~~

Λ

Questions? Just ask!



# Bonus Material

- Deeper Dive into other dimensions
- Bonus Example



# Dig Deeper! Education to promote:



## ➤ **Health literate citizens**

- National Health Education Standards
  - 1995 & 2007 – Better implementation: Continuity & Scaffolding
- Partnerships for adult instruction & awareness
  - Storylines, media advocacy, college

*Promote health*

*Access valid info*

*Advocate*



## ➤ **Culturally sensitive professionals**

- National Standards for Culturally and Linguistically Appropriate Services (CLAS) in Health and Health Care

*Culturally safe care*

*Diverse governance*

*Language access*

HHS.gov



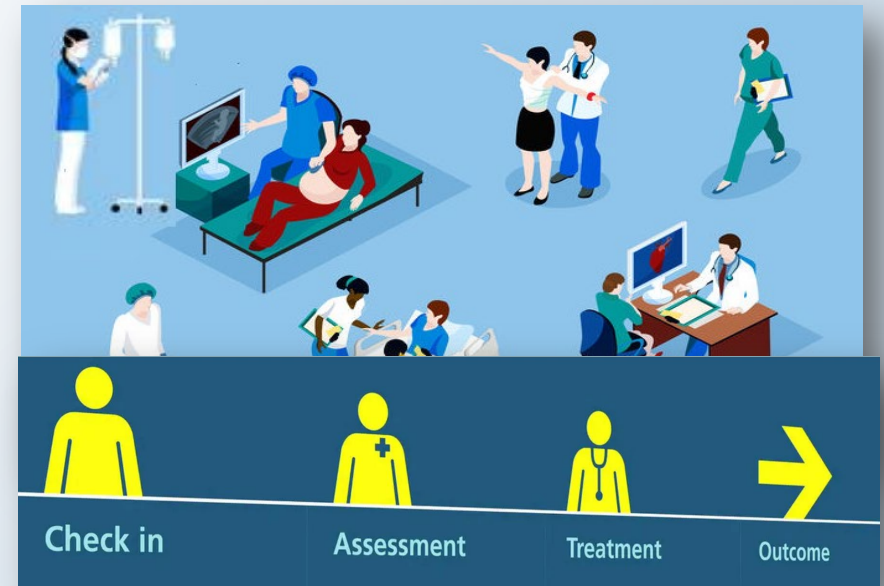
**THINK  
CULTURAL  
HEALTH**

PLAIN



# Dig Deeper! System Changes

- Policies: Federal & State Coordination
  - Plain Writing Act: PLAIN is budget-less!
  - § 508 – Rehabilitation Act: IT access for physical disabilities
  - § 1557 – Affordable Care Act
- Quality Standards / Ethics
- Organizational Support
  - Example: Process Redesign + Signage for guidance



# Bonus Example

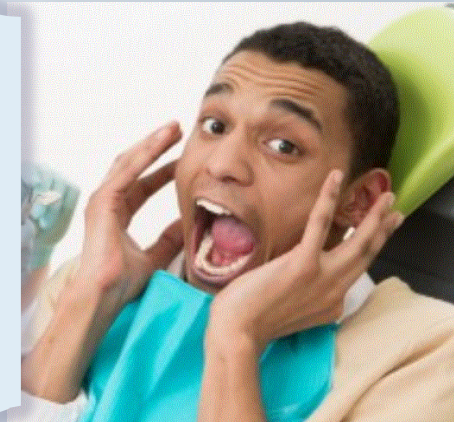
## Missing Coherence in Expert & Lay Versions



With disease progression splenomegaly occurred in most cases and the bone marrow shows varying signs of fibrosis, which causes extramedullary erythropoiesis during the disease course.

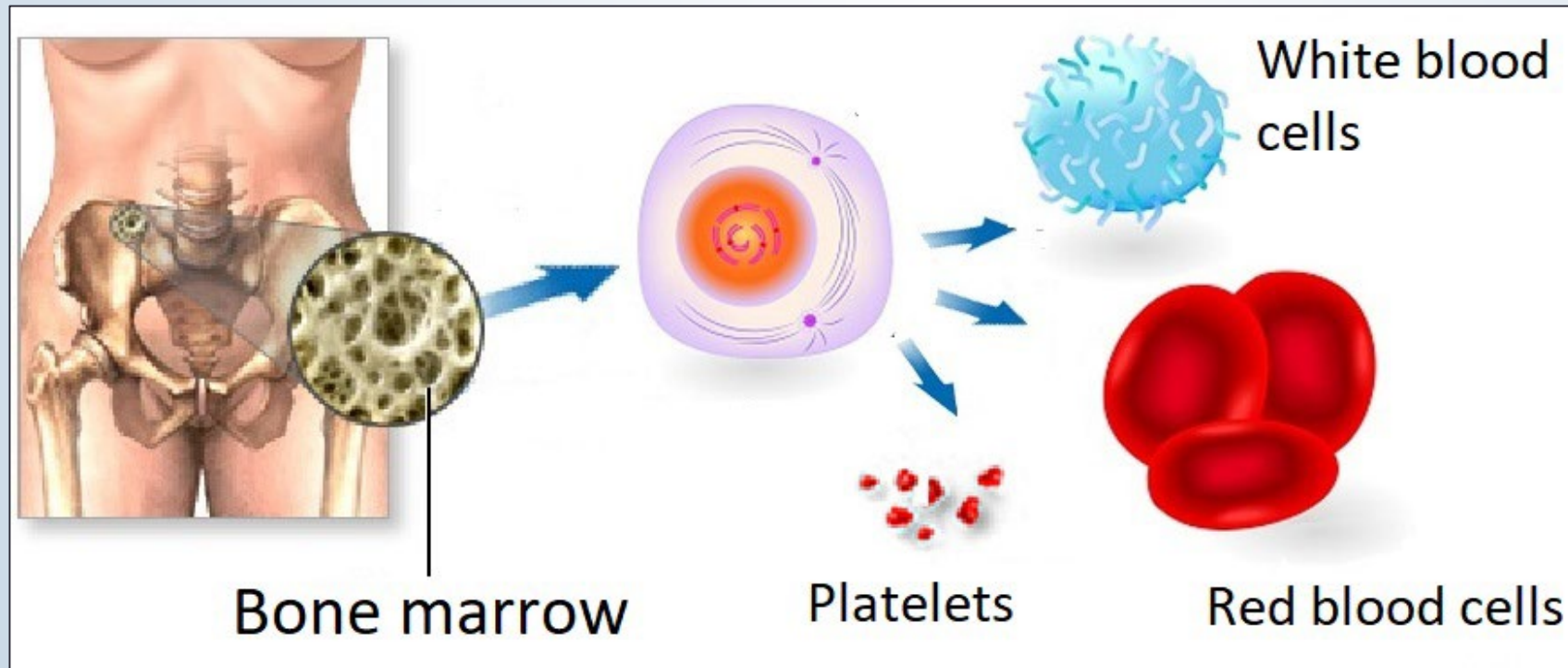
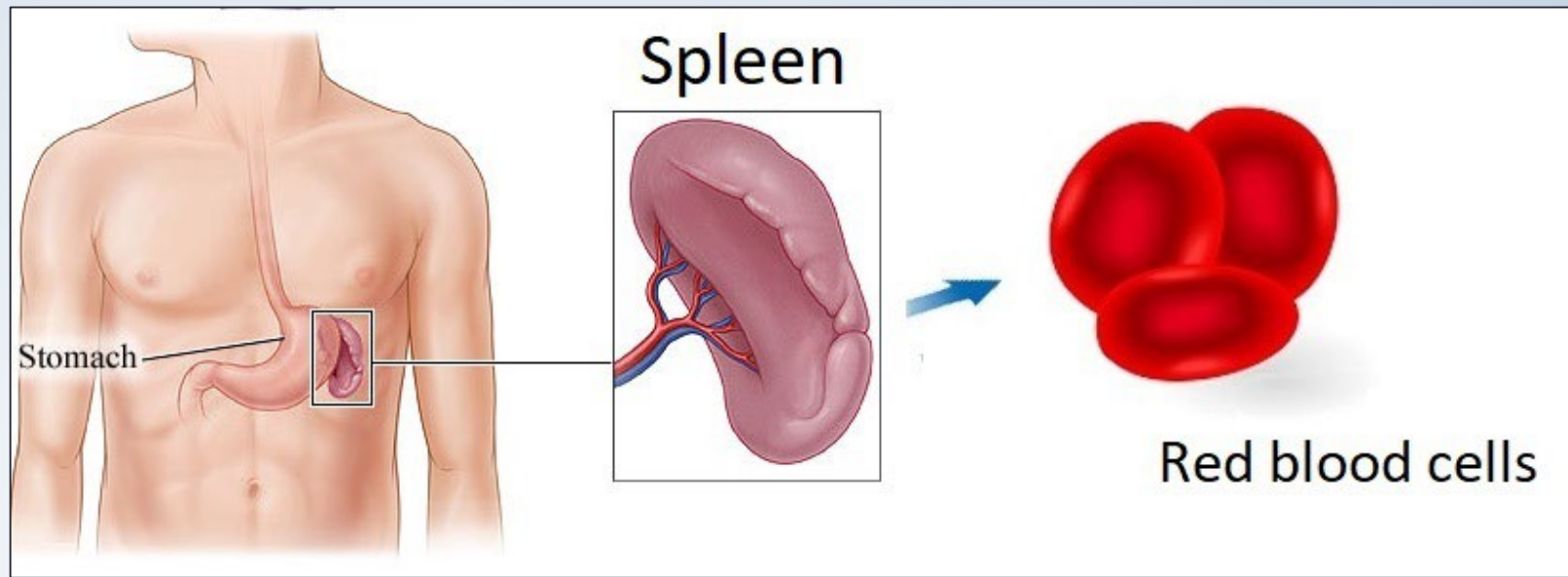


As the disease progresses the size of spleen increased in most cases. The bone marrow shows more and more scar tissue. The body produced red blood cells outside of the bone marrow.





# Extramedullary Erythropoiesis in Polycythemia Vera



Normal Erythropoiesis

# Plain Language is also for Experts



With disease progression splenomegaly occurred in most cases and the bone marrow shows increasing signs of fibrosis, which causes extramedullary erythropoiesis during the disease course.



In most cases, the bone marrow undergoes varying degrees of fibrosis, forcing the spleen into extra medullary erythropoiesis and resulting in splenomegaly.



# Plain Language for Laypeople

In most cases, the bone marrow undergoes varying degrees of fibrosis, forcing the spleen into extra medullary erythropoiesis and resulting in splenomegaly.



In most cases, scar tissue takes over the bone marrow. Normally, bone marrow produces blood cells. But the scarred bone marrow cannot produce blood cells. Because of this, the spleen has to work harder to produce red blood cells outside of the bone marrow. This causes the spleen to enlarge.

