MERCER UNIVERSITY
SCHOOL OF MEDICINE

Georgia HIMSS Regional Event
June 17, 2019

The Human Side of Informatics: Promoting Wellness

Edward C. Klatt, MD
Professor of Pathology
Mercer University School of Medicine

Learning Objectives

Define information behavior, civility, wellness, mindfulness, and resilience.

Describe human cognitive processing in relation to information load and stressors.

Discuss methods for promoting civility and reducing incivility in the workplace.

Practice methods that increase resilience to stressful situations.

Develop strategies to improve wellness in the workplace.

Time to Learn

Edward C. Klatt, MD
Professor of Pathology
Mercer University School of Medicine

Research emphasis on development of web-based curricular materials for pathology medical education.
•Also involved in collaborative clinical pathology projects especially in the area of tumor cell biology.
•Fashion Icon
•Ambience Master

Information Behavior

- Both active and passive information seeking and information use are modified by cognitive processes and require manipulation of data elements. These are stressors affecting wellness.
- Information must go into and come out of our brain. How the human brain acquires, processes, and retains information affects the usage of available data, and our reactions to it.
- Long-term potentiation (LTP) underlies forming memory and requires brain synapse modification in which a long-lasting enhancement occurs with repetitive stimulation of synapses.
- LTP has an early phase of 1–3 hours and a late phase up to 24 hours. Recall & review during these periods aid LTP.

Klatt EC. The Human Interface of Biomedical Informatics. J Pathol Inform. 2018 Sep 6;9:30. https://doi.org/10.4103/jpi.jpi_39_18.

Cognitive Load / Memory

- Working memory for active information processing includes both short-term and long-term memory components.
- Acquisition of new information is limited to only 5 to 9 separate pieces of new information into short-term working memory at any time.
- Between 2 and 4 of these pieces can be processed simultaneously, and only for a few seconds.
- Almost all of this new information is lost after 20 seconds unless it is refreshed through review.
- Learners may go through multiple cycles of learn forget before the new information gets into working memory.
- Long-term memory supplies immediate access to multiple informational items simultaneously.

Cognitive Limits

- There are cognitive limits to acquisition of information through reading.
- Novices read at a rate no more than 150 words per minute (WPM) for comprehension, and with high stakes scenarios may read no faster than 50 WPM.
- Content experts skim and scan at 400–600 WPM. Experts can become frustrated with novices and experts designing information systems may overlook difficulties encountered by novices attempting to acquire new information.
- Information transfer through an electronic health record (EHR) requires reading, and EHR usage for patient care may be considered a high-stakes task.

- Klatt EC, Klatt CA. How much is too much reading for medical students? Assigned reading and reading rates at one medical school. Acad Med. 2011:Sep;86(9):1079-83.

Visual Learning

- Most people are visual learners (modes: visual, auditory, reading / writing, kinesthetic) and also multimodal (more than one mode simultaneously), which is NOT the same as multitasking (which really multisequencing).
- The visual mode of learning may have advantages for memory storage.
- Visual long-term memory representations can be detailed. Long-term memory for objects in scenes can contain more information than only the gist of the object.
- Human memory is capable of storing fairly detailed visual representations of objects over long time periods.

Memory Formation and Usage

- There is a 20 minute upper limit to effective short-term memory processing and transfer. Technology, entertainment, and design (TED) talks do not exceed 18 minutes.
- Working memory capacity predicts performance on a wide variety of high-level cognitive measures, but individual differences are determined by variability in consistently deploying attentional control over what is stored in working memory.
- Low-capacity individuals have more difficulty ignoring distracting information than high-capacity individuals, because they are slower at disengaging attention from irrelevant information.
- Multitasking is multisequencing: more tasks must be performed in shorter sequences, or tasks compete for working memory, reducing effectiveness of working memory applied to each task.

Distraction and Attention

- A heavy information load negatively affects performance, whether measured regarding accuracy or speed.
- When information supply exceeds processing capacity, a person has difficulties identifying the relevant information, becomes highly selective, ignores a large amount of information, has difficulties in identifying details and the overall perspective, needs more time to reach a decision, and does not reach a decision of adequate accuracy.
- Information anxiety describes stress caused by the inability to access, understand, or make use of, necessary information.
- A coping strategy for overload is satisficing, taking just enough information to meet a need, rather than being overwhelmed, assuming just enough is good enough.

Information for Decision-Making

- Exploratory decision-making employs gathering of information from multiple sources and requires careful mental regulation.
- Exploitative decision-making may focus on exploiting a single source of information deemed to be high-yield, and employs unconscious habitual mental processing of information.
- Gathering or exploiting information represent opposing demands, balancing the desire to select what seems from experience the richest option (exploitative), against the desire to seek a less familiar option that might turn out to be more advantageous (exploratory).
- People under pressure resort to magical thinking.

Verbal Communication

What you said
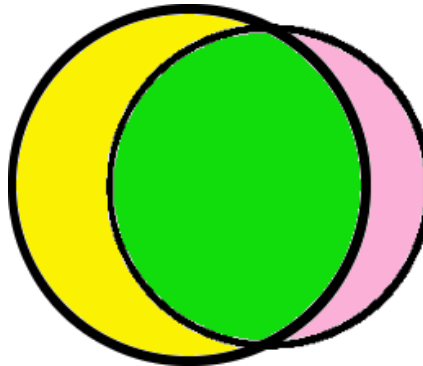
What was perceived

Information transfer is <100% congruent from presentation to reception. Visual aids promote retention of information. When health care providers speak to patients, 40%–80% of medical information is forgotten immediately, almost half remembered is incorrect, and the more information presented, the lower the proportion correctly recalled.

Stress and Memory

- Stress causes dissociation, a lack of connection in a person's thoughts, memory and sense of identity, that disrupts functions of memory. Dissociation during a traumatic disrupts both memory storage and retrieval.
- Distress during memory encoding may affect memory fragmentation.
- Dissociation during a traumatic event may prevent encoding of threatening, aversive memories protective against "bad" memories.
- However, dissociative encoding with incomplete initial processing of the traumatic experience, either during or following a trauma, may lead to fragmentation of the trauma memory, linked to the development and persistence of post-traumatic stress disorder.

Civility

- Workplace civility includes behaviors that show respect toward another person, makes them feel valued, and contributes to mutual respect, effective communication and team collaboration.
- Incivility includes behaviors characteristically rude and discourteous, displaying a lack of regard for others. Incivility harms people and violates workplace norms for mutual respect.
- Civility is a value system to improve workplace health and safety.
- Verbal, non-verbal, and electronic (written) communication are part of those behaviors, involving information behavior.

- Bradley V, Liddle S, Shaw R, et al. Sticks and stones: investigating rude, dismissive and aggressive communication between doctors. Clin Med (Lond). 2015;15(6):541-5.

Incivility, Stress and Cognition

- Incivility is contagious and causes persons to be rude when interacting with others. Even viewing an incident of incivility toward another person negatively affects the viewer. Incivility increases stress, impacting cognitive information processing.
- When teams experience rudeness there are catastrophic effects on team dynamics and performance, consuming resources that could have been focused on task achievement.
- Persons who are targets of rudeness are less likely to be helpful after experiencing rudeness. Rudeness disrupts conscious cognition with a "fight or flight" response over which we have no control. There is an informational challenge to process what is being received and how to respond. Attention is diverted from the task at hand.

Burnout

- Burnout and depression on the job diminish personal and professional satisfaction with careers.
- Burnout, at its core, is the impaired ability to experience positive emotions. It is a long-term stress reaction characterized by depersonalization, negative attitudes, emotional exhaustion, decreased personal achievement, and a lack of empathy.
- Stress diminishes health status and lifespan, not only for ourselves but also others around us. Mechanisms: ↑cortisol, ↓immunity, altered metabolism.
- In contrast, wellness promotes optimal levels of health and emotional and social functioning. A concerted effort to promote wellness and resiliency will reduce stress and better equip us to engage with others to provide high quality heath care.

Resilience and Wellness

- Resilience is the capacity to respond to stress in a healthy way such that goals are achieved at minimal psychological and physical cost.
- Resilient individuals "bounce back" after challenges while also growing stronger. Resilience is a key to enhancing quality of care, quality of caring, and sustainability of the health care workforce.
- Wellness involves caring for yourself, your colleagues, and and your patients and clients.
- Wellness is an ongoing process of self-awareness to make healthy choices resulting in a successful, balanced lifestyle.
- We focus on the development and maintenance of a wellness orientation.

Mindfulness

- Mindfulness contributes to resilience. You truly have control over yourself. Mindfulness is a state in which one is highly aware of the present moment, acknowledging and accepting it, without distracting thoughts or emotional reactions.
- Mindfulness requires calm but it is not a relaxation technique. It does lower blood pressure and heart rate to promote health.
- Mindfulness is mental training to enhance awareness and ability to disengage from maladaptive patterns of mind, including information behavior, that predispose to stress responses.
- Mindfulness attempts to increase awareness of positive thoughts and emotions in responding to stress, thereby learning to cope with stress in healthier, more effective ways.

Elements of Burnout

- Burnout is a complex problem. The driver dimensions can be divided into seven areas:
    - Workload
    - Efficiency
    - Flexibility and control over work
    - Work-life integration
    - Meaning in work
    - Alignment of values between healthcare professionals and the organizations for which they work
    - Community and collegiality

https://www.medscape.com/viewarticle/896855?

Am I Burned Out?

- You try to be everything to everyone
- You get to the end of a hard day at work, and feel like you have not made a meaningful difference
- You feel like the work you are doing is not recognized
- You identify so strongly with work that you lack a reasonable balance between work and your personal life
- Your job varies between monotony and chaos
- You feel you have little or no control over your work
- You work in healthcare.

https://www.mnhospitals.org/Portals/0/Documents/education/7165_GS06.pdf

Circumstantial Burnout

- A reaction to environmental challenges or crises; it involves self-limited circumstances and environmental triggers.
- Recovery involves:
  - Resolving workplace challenges;
  - Nurturing personal lives; and
  - Taking time off

Abedini NC, Stack SW, Goodman JL, Steinberg KP. "It's Not Just Time Off": A Framework for Understanding Factors Promoting Recovery From Burnout Among Internal Medicine Residents. J Grad Med Educ. 2018;10(1):26-32.

Exitential Burnout

- A loss of meaning in medicine and an uncertain professional role.
- Recovery involves:
  - Recognizing burnout and feeling validated;
  - Connecting with patients and colleagues;
  - Finding meaning in medicine; and
  - Redefining a professional identity and role.

Abedini NC, Stack SW, Goodman JL, Steinberg KP. "It's Not Just Time Off": A Framework for Understanding Factors Promoting Recovery From Burnout Among Internal Medicine Residents. J Grad Med Educ. 2018;10(1):26-32.

Combating Burnout

- At Duke University a simple program called "Three Good Things" to reduce burnout studied medical residents with high stress work.
- Each person was advised to write down, just before going to bed, three good things that happened that day and label them with one of the 10 positive emotions: joy, gratitude, serenity, interest, hope, pride, amusement, inspiration, awe, and love. They can be minor things such as watching a funny television show or spending time with friends.
- A year after the intervention ended, 48% of residents practicing this program remained resilient, suggesting the intervention has a lasting effect on risk for burnout.

https://www.medscape.com/viewarticle/887432

Combating Burnout, cont'd

- A follow-up to the "Three Good Things" intervention was studied for health care workers.
- Analysis of the participants' Three Good Things responses led to the identification of three main themes:
  (1) having a good day at work;
  (2) having supportive relationships; and
  (3) making meaningful use of self-determined time

Rippstein-Leuenberger K, Mauthner O, Bryan Sexton J, Schwendimann R. A qualitative analysis of the Three Good Things intervention in healthcare workers. BMJ Open. 2017 Jun 13;7(5):e015826. https://doi.org/10.1136/bmjopen-2017-015826.

How/What Others Think

- Shift what you do to focus not on *what* others think but on *how* they think
  - ○ 95% of our mental processing takes place unconsciously
  - ○ 5% of decisions are based upon conscious, rational thought.
- Unconscious cues include:
  - ○ Sights (body language, expressions, signs, symbols)
  - ○ Sounds
  - ○ Smells

- Think and look at everything from the situation by identifying the emotions others want to feel, and then design and manage the cues embedded in an experience to elicit these emotions.

Responding to Social Cues

- We do not all respond to verbal and non-verbal cues similarly.

- Persons acculturated into an administrative environment may not respond the same as persons familiar with an inpatient clinical setting or with an outpatient care setting.

- What seems non-threatening to us may be interpreted differently by others.

- Worst case scenario: street gang members respond to cues far differently from what is considered the social norm. They perceive many threats and react unpredictably.

- Interprofessional education: understanding what others do on the health care team is a key part of training.

Empathy

- Empathy is the ability to share or understand the feelings of another person.

- When we use reflective statements ("I'm aware how frustrated you are"), the people with whom we interact are more likely to perceive support.

- Empathy promotes satisfaction with the service offered.

Pollak KI, Alexander SC, Tulsky JA, et al. Physician empathy and listening: associations with patient satisfaction and autonomy. J Am Board Fam Med 2011;24:665–672.

Frustration and Anger

- Try to deal with anger. Emotion tends to heighten vengeful behavior.
- Emotion is particularly heightened when pregnancy, childbirth, and children are involved.
- Vengeance and anger build over time – usually a series of events. Communication could have stopped this.
- Rude behavior by anyone in the health care system multiplies the problem:

$$\text{Problem}^{\text{(Rude Behavior)}}$$

- Show empathy; easy to say, hard to do.

Frustration and Anger - Patients

- Don't get angry in front of anyone, patient or colleagues. You are not the aggrieved party in the eyes of the patient. You get to walk away from any problem, but the patient does not.

- Talk to the patient directly.

- You may uncover issues that need to be addressed (if one person is affected, there will be others).

- Say, "I'm sorry."

- Don't make excuses. If you are in a hole, stop digging.

- Remember that patient trust in you (as a representative of the system) has been lost. Loss of trust is devastating.

- Make amends: no charge, verbal or written apology.

Dealing with Anger

- Help the angry person express anger constructively:
  - Recognize anger and its cause; remain calm and demonstrate respect; focus your responses on needs
  - Maintain adequate personal space (if in person)
  - Do not take anger personally
- The person venting frustration is not ready to listen until this phase passes. This person wants to be heard. Then, when ready:
  - Ask to be specific concerning the cause
  - Present your point of view, but provide an apology, at least generic
  - Avoid breakdown of communication, but leave if you feel physically threatened

Response to Incivility

- Take care of yourself; recognize what is happening and seek to surround yourself with supportive persons.

- Reduce your exposure; steer clear if possible.

- Engage in mindfulness; refocus.

Porath CL, Foulk T, Erez A. How incivility hijacks performance: It robs cognitive resources, increases dysfunctional behavior, and infects team dynamics and functioning. Organizational Dynamics. 2015;44(4):258-65.

Reducing Incivility

- Examine your behavior and how you contribute to civility/incivility.
- Take a temperature check in your workplace to see how people treat one another.
- Don't listen to or tolerate rumors and gossip.
- Encourage others not to jump to conclusions about the intent or motives of colleagues, patients, or families.
- Stop the blame game and encourage a solutions orientation to problems.
- Encourage acts of kindness.
- Go out of your way to say thank you, and promote this behavior.
- Look for common ground in dealing with conflict.
- Encourage the practice of forgiveness.
- Make it safe for staff to ask questions and discuss problems.

Combating Incivility: Cognitive Rehearsal

- The term lateral violence evolved from oppression theory and refers to behaviors described as bullying that members of the oppressed group manifest toward each other as a result of being members of a powerless group.
- Nurses in particular are vulnerable to incivility and must be equipped to effectively address uncivil behaviors as they occur. The simple act of speaking up is often an effective intervention.
- Through the use of cognitive rehearsal, nurses can learn pre-rehearsed phrases designed to confront and stop bullying behaviors. The rehearsed and learned retort is matched in some fashion to the offense that has occurred.

Griffin M, Clark CM. Revisiting cognitive rehearsal as an intervention against incivility and lateral violence in nursing: 10 years later. J Contin Educ Nurs. 2014;45(12):535-42.

.

Combating Incivility: Cognitive Rehearsal, cont'd

- Using nonverbal behaviors or innuendo (e.g., eye-rolling, making faces, deep sighing).
- Response: "I sense/see from your facial expression that there may be something you wish to say to me. It is OK to speak to me directly."
- Name-calling, verbal affronts, demeaning comments, putdowns, sarcastic remarks. Response: "I learn best from individuals who address me with respect and who value me as a member of the team. Is there a way we can structure this type of interaction?"
- Using silent treatment or withholding important information.
- Response: "It is my understanding that there was/is more information available regarding this situation. Please share any other important information since patient care depends on a full report."
- Using anger, humiliation, and intimidation.
- Response: "When the words that I hear make me fearful or shamed, I need to seek a respectful professional explanation. What was your intent?"

.

Resilience: Interventions

- Defined strategies to achieve increased resilience are well established.
- The Mindfulness-Based Stress Reduction (MBSR) program is often delivered over 8 weeks.
- Training programs such as the Stress Management and Resiliency Training (SMART) program have produced improvements in stress, anxiety, resilience, happiness, mindfulness and burnout in health care staff after only 8 of 24 weeks.

Magtibay DL, Chesak SS, Coughlin K, Sood A. Decreasing Stress and Burnout in Nurses: Efficacy of Blended Learning With Stress Management and Resilience Training Program. J Nurs Adm. 2017 Jul/Aug;47(7-8):391-395.

Resilience: Interventions, cont'd

- Review of studies shows interventions to be of benefit, as participation creates self-awareness and greater understanding.
- More successful interventions with greater improvements in resilience involved more training sessions of more duration:
    - 8 to 12 sessions
    - Total intervention of 9 to 24 hours
- Optional follow-up sessions tend not to sustain results.
- Future needs: more clearly defining resilience and measuring long-term outcomes.

Cleary M, Kornhaber R, Thapa DK, et al. The effectiveness of interventions to improve resilience among health professionals: A systematic review. Nurse Educ Today. 2018;71:247-263.

Key Components to Wellness

- Maintain physical health with adequate rest, healthy diet, and regular exercise whenever possible.
- Develop self-confidence.
- Manage a work life balance, leaving work behind (evenings, weekends, vacations).
- Being present in the moment.
- Recognize and accept humanity in oneself and in others.
- Promote a sense of accomplishment, satisfaction, and belonging.

Changing the Conversation From Burnout to Wellness: Physician Well-being in Residency Training Programs J Grad Med Educ. 2009 Dec; 1(2): 225–230.

Wellness: The Way Forward

- Get administrative support for wellness interventions. What aspects of wellness are goals for your organization?
- Track progress and adjust your interventions.
- Nutrition (e.g., healthful food options and scheduled time to eat)
- Exercise / Fitness opportunities
- Emotional health
- Preventive care (e.g., access to a primary care provider)
- Career health (e.g., financial planning, opportunities for career changes)
- Mindset and behavior adaptability

Meaninglessness: What to Avoid

- Take your employees for granted
- Treat people unfairly
- Give people pointless work to do
- Over-ride people's better judgement
- Put people at risk of physical or emotional harm
- Disconnect people from supportive relationships
- Disconnect people from their values

Bailey C, Madden A. What makes work meaningful - or meaningless. Cambridge, MA: MIT Sloan Management Review, June 1, 2016 https://sloanreview.mit.edu/article/what-makes-work-meaningful-or-meaningless/

Qualities of Meaningful Work

- **Self-transcendent:** Individuals experience work as meaningful when it matters to others more than just to themselves.
- **Poignant:** People may find their work full of meaning at moments associated with mixed, uncomfortable or even painful thoughts and feelings, not just a sense of unalloyed joy and happiness.
- **Episodic:** A sense of meaningfulness arises in an episodic rather than a sustained way.
- **Reflective:** In retrospect and on reflection people may see their completed work and make connections between their achievements and a wider sense of life meaning.
- **Personal:** Meaningful work is often understood by people not just in the context of their work, but also in the wider context of their personal life experiences.

Mindfulness Practices

- **Mindfulness-based stress reduction (MBSR) training** consisted of eight weekly sessions. Participants practiced mindfulness exercises, received psychoeducation about stress, and were instructed to practice daily at home for approximately 45 min. They learned to focus their attention on the present moment and observe their own thoughts, feelings, and bodily sensations in a kind and nonjudgmental way rather than identifying with them (meta-awareness). Participants were encouraged to become aware of their own automatic behavioral patterns and to consider replacing them with more conscious and helpful behavior.

- **Participants indicated that MBSR training increased their awareness and self-reflection at work, and they were more accepting toward themselves and toward their limitations.** There were more resilient and better at setting priorities and limits. They improved their self-care and work-life balance. The training made them more aware of how they communicated. They asked for help more often and seemed to be more open toward feedback. Lastly, they indicated an increased sense of compassion for others.

Verweij H, van Ravesteijn H, van Hooff MLM, Lagro-Janssen ALM, Speckens AEM. Does Mindfulness Training Enhance the Professional Development of Residents? A Qualitative Study. Acad Med. 2018 Sep;93(9):1335-1340.

Mindfulness Practices, cont'd

- Sitting meditation, involving awareness of body sensations, thoughts, and emotions while continually returning the focus of attention to the breath;
- Body scan, a progressive movement of attention through the body from toes to head, observing any sensations in the different regions of the body;
- Hatha yoga, which consists of stretches and postures designed to enhance greater awareness of and to balance and strengthen the musculoskeletal system;
- 3-minute breathing space, a "mini-meditation" that focuses on the breath, the body, and what is happening in the present moment.

Shapiro SL,Astin, JA.,Bishop SR.,Cordova M. Mindfulness-Based Stress Reduction for Health Care Professionals: Results From a Randomized Trial. International Journal of Stress Management, 2005;12(2):164-176.

Win with Excellence

- Compassion and caring go a long way.

- The health and safety of our patients as well as the women and men who serve and care for them is our foremost concern.

Audience Questions

- What are the features of burnout?

- How do you cope with burnout?

Audience Question

- How do you cope with incivility?

- How do you promote civility?

Audience Question

- How do you develop resilience?

- What are the elements of wellness?

Audience Question

- What is mindfulness?

- Have you heard of practicing mindfulness to cope with stress?

Audience Question

Do you have mindfulness practices?

Does it help you manage stressful situations?

Please share.

References?

- Williams M, Teasdale Zindel Segal J, Kabat-Zinn J. (2007). The Mindful Way through Depression: Freeing Yourself from Chronic Unhappiness. New York: Guilford Press.
- Rippstein-Leuenberger K, Mauthner O, Bryan Sexton J, Schwendimann R. A qualitative analysis of the Three Good Things intervention in healthcare workers. BMJ Open. 2017 Jun 13;7(5):e015826. https://doi.org/10.1136/bmjopen-2017-015826.
- Griffin M, Clark CM. Revisiting cognitive rehearsal as an intervention against incivility and lateral violence in nursing: 10 years later. J Contin Educ Nurs. 2014;45(12):535-42.
- Porath CL, Foulk T, Erez A. How incivility hijacks performance: It robs cognitive resources, increases dysfunctional behavior, and infects team dynamics and functioning. Organizational Dynamics. 2015;44(4):258-65.
- Pollak KI, Alexander SC, Tulsky JA, et al. Physician empathy and listening: associations with patient satisfaction and autonomy. J Am Board Fam Med 2011;24:665–672.
- Abedini NC, Stack SW, Goodman JL, Steinberg KP. "It's Not Just Time Off": A Framework for Understanding Factors Promoting Recovery From Burnout Among Internal Medicine Residents. J Grad Med Educ. 2018;10(1):26-32.
- https://www.mnhospitals.org/Portals/0/Documents/education/7165_GS06.pdf

Thank You!

Edward C. Klatt, MD
klatt_ec@mercer.edu