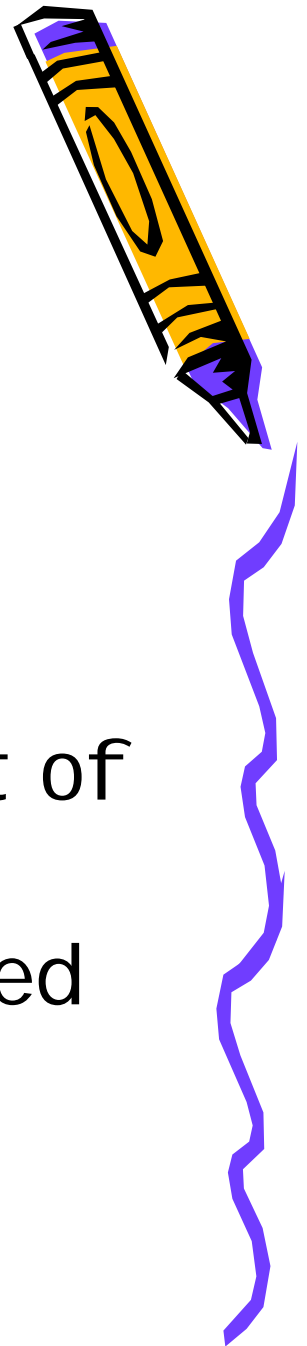


# Pediatric Adherence for the School Nurse



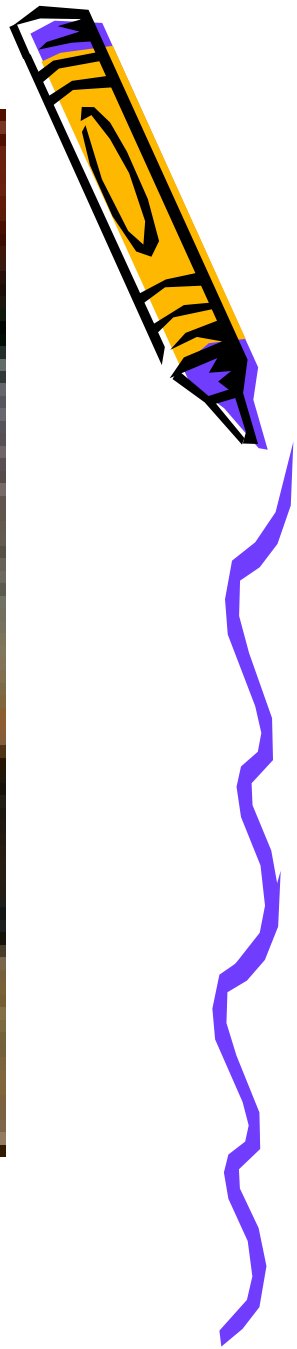
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- Thanks also to the ongoing support of KU Center for TeleMedicine, the TeleKidcare program, and Connected Kansas Kids.





Compliance

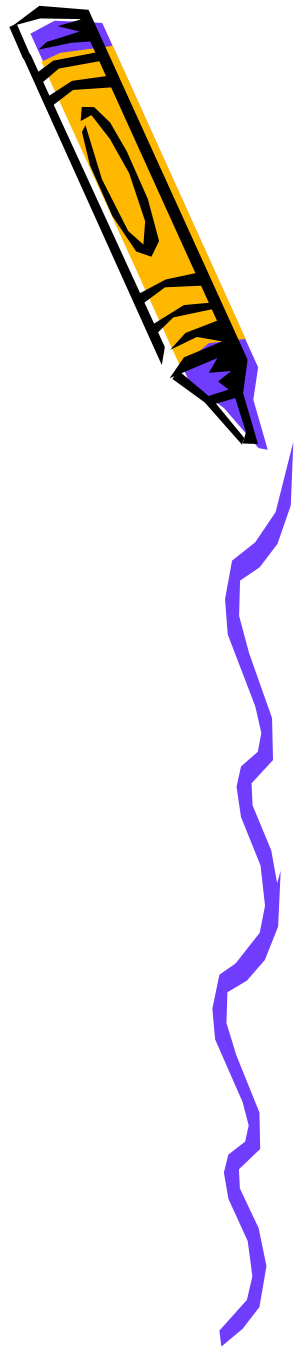
# Adherence Definition

- “The extent to which a person’s behavior (in terms of taking medications, following diets, or executing lifestyle changes) coincides with medical or health advice.”  
(Haynes, 1979)



# Types of Nonadherence

- Not knowing, health literacy
- Not following
- Choosing not to follow, "rational nonadherence"

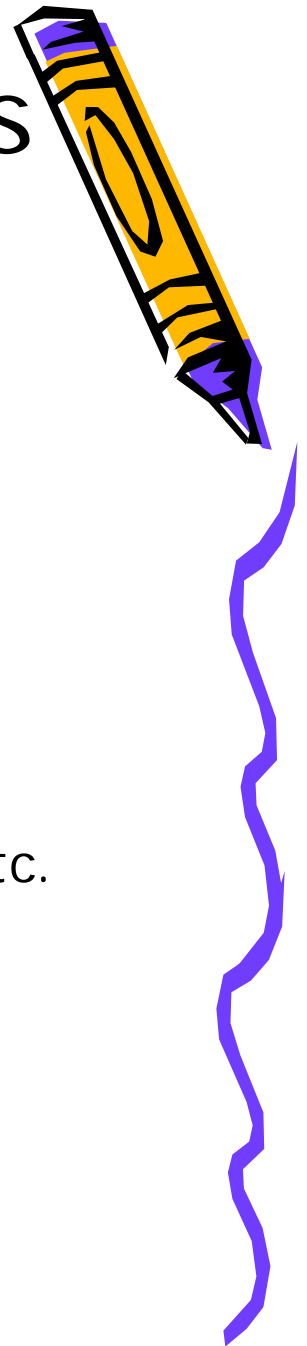




# My Pyramid



# Range of Recommendations



- Appointment keeping
  - Vaccinations as example
- Medications
  - How much? Timing, Continuation, Other recommendations—with food, etc.
- Psychotherapy recommendations
  - Psychotherapy homework
  - Daily note from school and home
  - Calendar monitoring—attendance, mood, dry/wet, etc.
- Lifestyle changes
  - Eating
  - Sleeping
  - Other





# The Scope of Medication Nonadherence





# Types of Medication Nonadherence



- Not filling prescription, Adderall example
- Not (or delays in) refilling prescription
- Omitting doses
- Drug holidays (no doses for several concurrent days)
- “Toothbrush Effect” or “White-coat” Adherence (increased adherence around visits)
- Overdosing or taking extra “make-up” doses



# Medication Nonadherence Rates

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- 1/3 of patients on short-term regimens
- 50-55% of patients on long-term regimens
- Adherence declines over course of illness



# Nonadherence Rates by Disease (Drug) in Pediatrics

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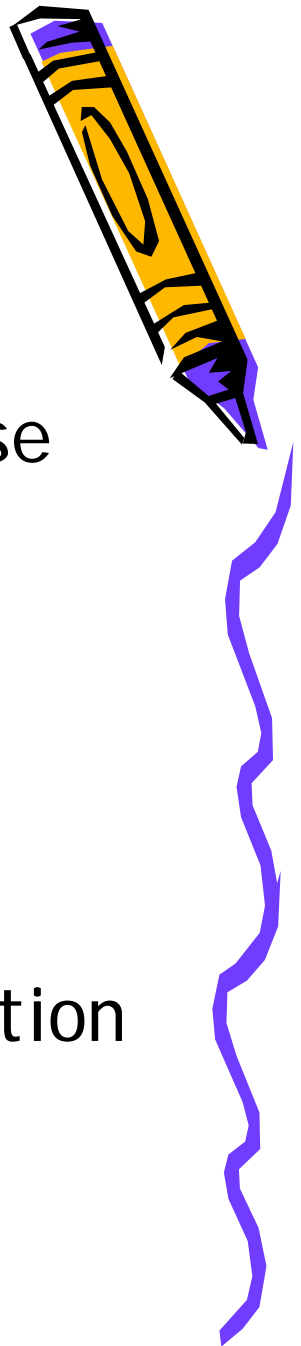


- Under and over use of medication
- Asthma (theophylline) = 34-88%
- Cancer (prednisone) = 19-42%
- JRA (salicylates) = 45%
- Epilepsy (anticonvulsants) = 21-56%



# Other Areas

- Less data but adherence as bad or worse as medications
  - Insurance challenges
  - Long-term nature of recommendations
- Nonadherence to psychotherapy recommendation
- Nonadherence to lifestyle recommendation



# Society-wide costs

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- Cost of nonadherence in U.S. estimated at \$100 billion per year (Berg et al.; *Annals of pharmacotherapy*: 27: 2-21.)
- Costs associated with drug resistant infectious diseases in U.S. estimated at \$100-\$200 million per year (Gibbons; *Science*: 257: 1036-38)
- Increases economic burden on families and society in general



# Local costs related to clinical care



- Providers unaware of nonadherence may order more invasive, risky, and costly procedures and may prescribe more potent meds with greater side-effects.
- Providers may fail to make appropriate changes in regimens (e.g., adjusting insulin doses for adolescents in response to pubertal growth spurts) if they over-attribute treatment failures to nonadherence.



# Asthma-related Morbidity and Mortality

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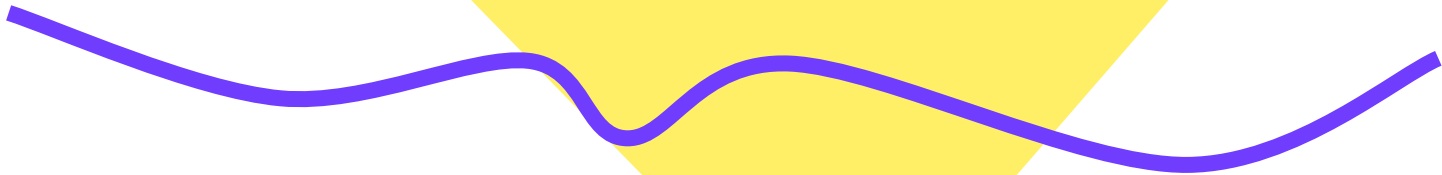


- More days with functional limitations and school absences.
- Increased ER visits and hospitalizations.
- Increase in asthma-related deaths (especially among African-American children with a rate 5x higher than Caucasian children).





# Nonadherence Risk Factors







Overall adherence factors  
**CANNOT REPRODUCE FOR  
POSTED SLIDE, SEE ARTICLE**

Osterberg & Blaschke (2005), Adherence to Medication, NEJM, 353 (5), 487-498.



# Patient Nonadherence Factors



- Adolescent
- Male
- Dissatisfaction with Medical Care
- Lack of Knowledge
- Poor Overall Adjustment & Coping
- Depression and risk taking RISK factors for generalized poor adherence



# Family Nonadherence Factors

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- Family Dysfunction
- Lack of Parental Knowledge
- Lower SES
- Lack of Parental Supervision



# Disease Nonadherence Factors

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- Patient Asymptomatic or in remission
- Increased number of symptoms
- Younger age at disease onset
- Disease not perceived as severe by family



# Regimen Nonadherence Factors

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- Complex, Demanding, and Costly regimens
- Delayed beneficial effects
- Limited Provider Supervision
- Negative regimen side effects



# Adherence & Dose

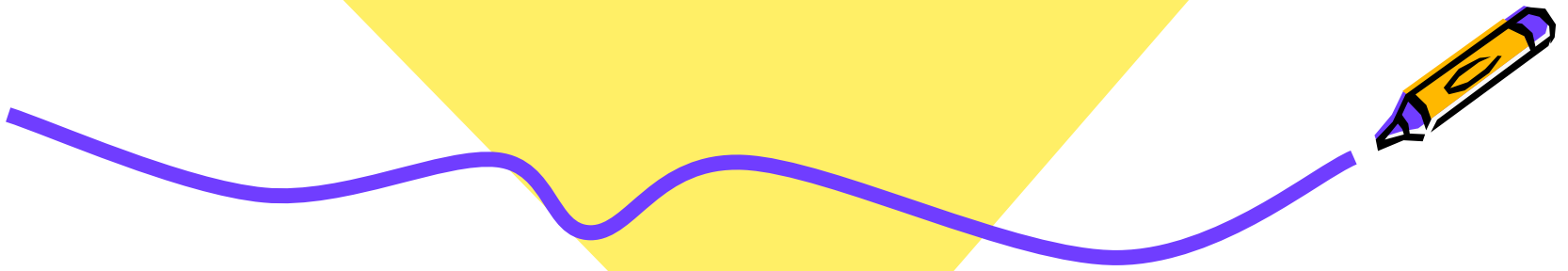
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ARTICLE**

from Osterberg & Blaschke (2005), Adherence to Medication,  
NEJM, 353 (5), 487-498.





# Measuring Nonadherence



**Methods of Measuring Adherence.**  
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Osterberg & Blaschke (2005), Adherence to Medication, NEJM, 353 (5), 487-498.

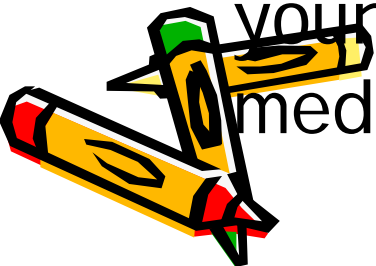




# Improving Self-Reported Adherence



- Directly evaluate adherence behaviors in an information-intensive approach (“Which medications are you taking? What dose? How often? Have you had any side-effects?”).
- Probe for nonadherence in a non-judgmental and non-threatening manner (“Many people have trouble remembering to take their medication. Do you ever forget to take yours? Do you ever stop taking your medication on purpose?”)



# Improving Self-Reported Adherence

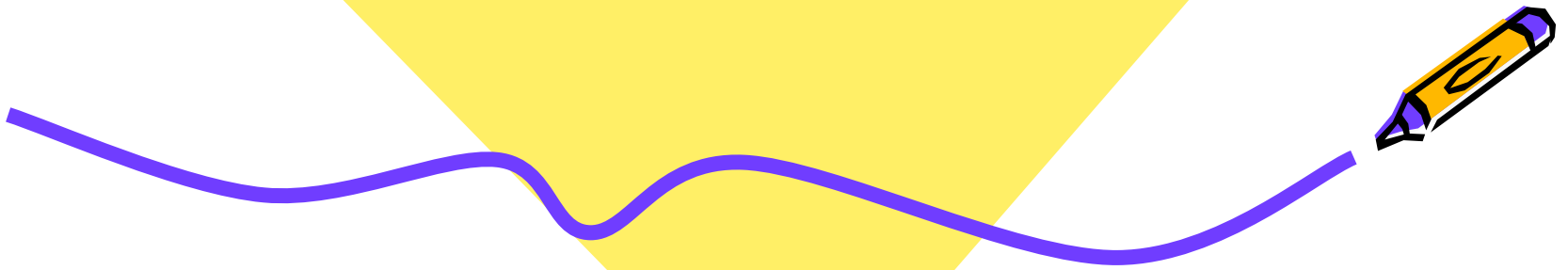


- PRAISE HONESTY
- Time frame for questioning about adherence should be limited to the previous 7 to 10 days.
- Ask families about barriers to adherence (personal, financial, social & cultural).

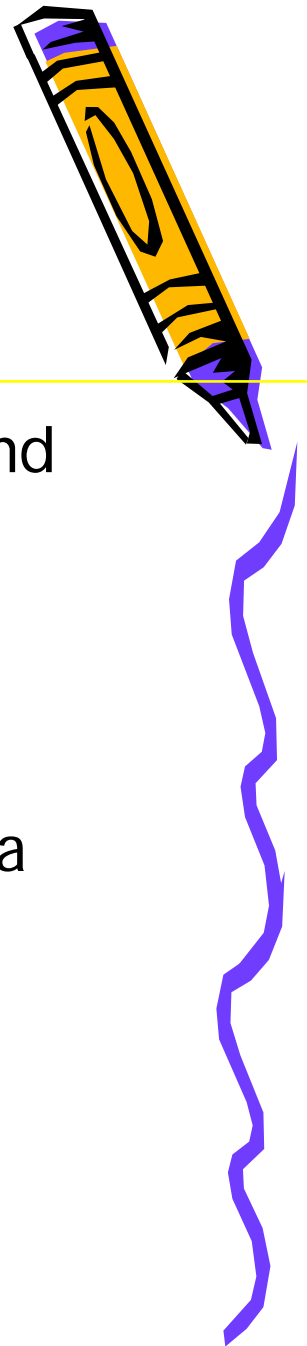




# RX for Improving Adherence



# Adherence Enhancement Strategies



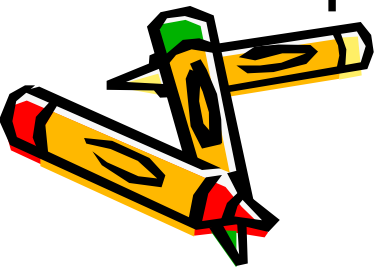
- **Educational** (about disease, treatments, and importance of adherence)
- **Behavioral** (cognitive and behavior change strategies to enhance adherence)
- **Organizational** (delivering health care in a way that facilitates adherence)



# The What of Education (Content)



- The Disease (causes, course & prognosis)
- Treatments (what to do and why)
- Negative Side Effects (how to minimize)
- Adherence (importance and improvement strategies)



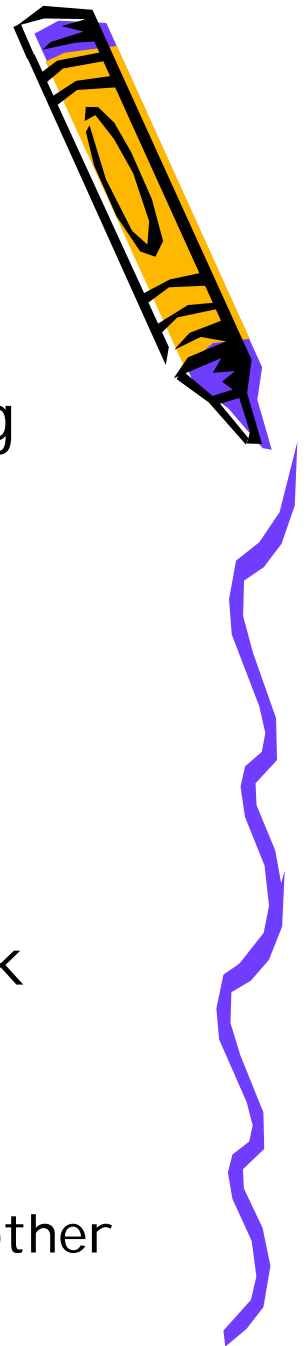
# The How of Education (Strategies)



- As an ongoing process
  - Developmental stage
  - Each new school year
- Effective verbal communication (avoid jargon, stress instructions, repeat info., encourage questions)
- Translated material good start but not enough to address health literacy; also use of professional medical interpreting
- Written & other media
- Modeling and behavioral rehearsal

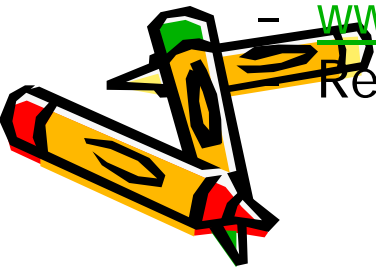


# HOW CAN SCHOOL NURSE HELP?



- Liaison between school and healthcare, helping youth do work of childhood
- Repetition
- What family would like to or may need to ask provider?
  - Triage
  - Writing down questions
  - Basics—how do I use a thermometer? Etc.
- Assist family and colleagues to understand link between health and learning
- Link resources for information
  - [www.connectedkansaskids.com](http://www.connectedkansaskids.com)

Resources about insurance, medication assistance, other



# Behavioral Strategies



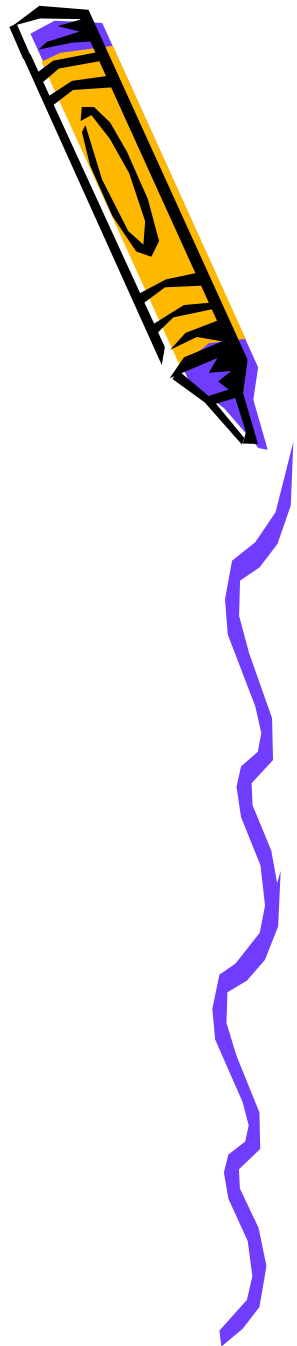
- Normalize need for continued monitoring with adolescence, especially with attention challenges
  - Parent
  - school
- Prompting adherence
- Adherence incentives
- Discipline strategies
- Self-management strategies (goal setting, self-monitoring, self-administered consequences, problem-solving, & cognitive reframing)





# REHEARSAL

- Who, what, where, when, why
- Parent and child as partners in what really work within the day



# Organizational Strategies



- Central point of contact organizing different specialists
- Culture encourage asking questions
- Consumer-friendly clinical settings
- Simplify regimens
- Minimize negative side effects
- Technology/EMR





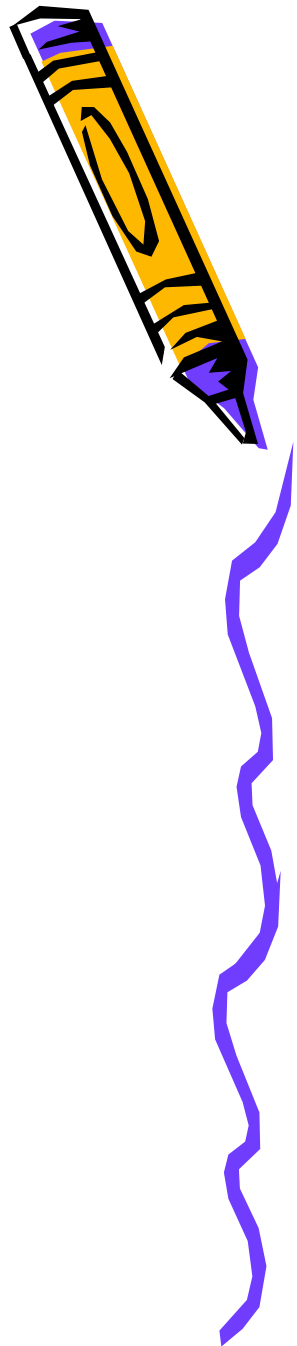
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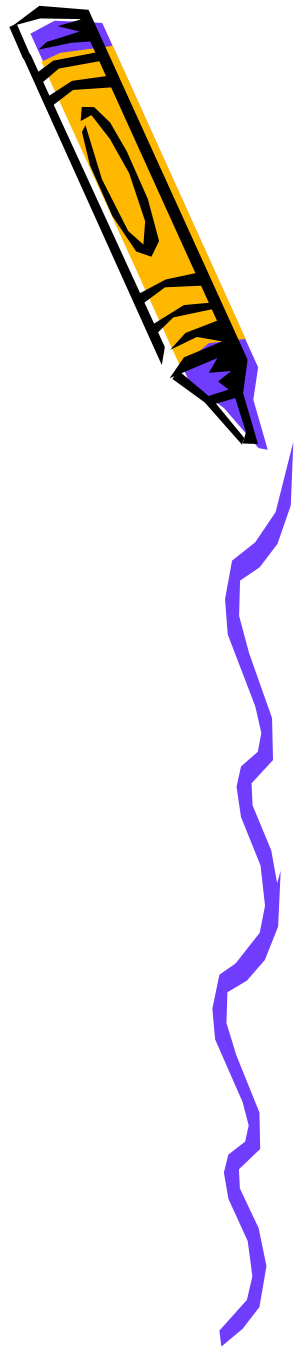
# EXAMPLE 1: NOT KNOWING

- Renewal of medication



# EXAMPLE 2: NOT FOLLOWING

- Pill swallowing example



# EXAMPLE 3: RATIONAL NONADHERENCE

- Can't be sleepy before honors classes

