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Take, Wait, Stop: Improving Patient Use of PRN Prescription Drugs

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PRN = Pro Re Nata - "As Needed"

- Chronic medicines = routine, extended use

- PRN = not routine, limit use

- Patients are to interpret label instructions & limit use based on symptoms

- Studies find that PRN instructions are often misinterpreted[*]

- We focused on prescription pain medicines

* Wolf MS, King J, Jacobson K, et al. Risk of Unintentional Overdose with Non-Prescription Acetaminophen Products. *J. Gen. Intern. Med.* May 26 2012

Developing Patient-Centered Instructions

- Deconstruct core actions

- Emphasize action terms

  - **Take:** Dose (# of pills per use)

  - **Wait:** Interval (min. time between doses)

  - **Stop:** Maximum daily dose

Clearly defined, actionable steps can be envisioned to model a traffic signal.

The Labels

Commonly Worded Label

Take, Wait, Stop Label

- Drop 'exceed'
- Employ carriage returns
- Use numeric vs. alpha characters

Study Design - Pilot

- Study assessing use of Rx acetaminophen-containing pain relievers from ED

- Ages 18-80, English speaking, new Rx

- Return visit 4-7 days later, 1:1 randomization

- Dosing demonstration, socio-demographics & REALM

- Errors: Single dose >2 pills, Interval <4hrs, Max >6 pills/24hrs

Dosing Activity

"Imagine it is 8am & you are having pain. Please show me how many pills you would take at 8am."

"If you were still in pain after taking this dose, when could you take this medicine again?"

"Show me at what time & how many pills you would take for your next dose."

Dosing tray with 24 boxes, each labeled with an hour of the day.

Results (n=87)

Demographics:

- Mean age - 39.8 years

- Afr. Amer. – 42%, White – 43%, Other – 16%

- Adequate Literacy - 72.4%

- No difference in characteristics between label types

Results (n=87)

Bivariate Outcomes:

Error Type	Total	Label Type		P value
		Standard (n=44)	**Take, Wait, Stop (n=43)**	
Maximum dose, %	23.0	31.8	14.0	0.05
Single dose, %	1.2	2.3	0.0	0.47
Dose spacing, %	21.8	20.5	23.3	0.75

Results, con't

- Relationship between label type and maximum dose errors remained significant

- More likely to exceed maximum dose

  - Standard label – aRR 2.5 (95% CI: 1.05-7.70, p=0.03)

  - Afr. Amer. – aRR 3.2 (95% CI: 1.11-8.93, p=0.03)

  - Other – aRR 4.9 (95% CI: 1.57-15.19, p=0.006)

Conclusions

- "Take, Wait, Stop" label prevented participants from exceeding maximum dose in 24hrs

- Patient literacy level - not related to performance

- # of pills in single dose ≠ primary source of confusion - strategy did not affect this type of error

- Short of specifying times of day to take medicine, difficult to reduce the complexity of dosing interval – strategy didn't impact spacing

Limitations

- Pilot – small sample, power

- Hypothetical dosing vs. actual

- Strength & weakness = taking a PRN analgesic leading up to assessment

  - Recent pain = more true to life scenario

  - Dosing based on actual medicine vs. label

Implications

- Our findings suggest this approach could be a promising direction for improved PRN labeling

- Format may be applicable to OTC medicines as majority are PRN.

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