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Over the Counter Medication Education Approach

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Nature of the Problem

- ▶ OTC meds are essential because they give the patient the ability to avoid an unnecessary visit to the doctor's office, they also allow the health care provider to better focus on those with more serious illnesses, and some patients do not have appropriate health care access and rely solely on non-prescription meds, however, patients who use OTC meds do have a tendency to underestimate the serious risks of these meds such as potential for abuse, toxicity, adverse effects, drug interactions, and the delay in seeking a physician
- ▶ Patients do not consistently understand important differences among medications within a specific class, such as being aware that acetaminophen will treat fever and aches but not inflammation unlike NSAIDs
- ▶ Patients may present to office misusing an expectorant for a nonproductive cough and an antitussive for a productive one, rather than the opposite
- ▶ Patients may overestimate the benefits of using certain OTC medications such as taking analgesics to treat a low-grade fever, undermining the body's attempt to fight an infection
- ▶ Patients may not be attentive to the medication label, unknowingly taking excess acetaminophen because they are combining Tylenol with Dayquil/Nyquil, patients take an incorrect dose of an OTC fever medicine 50% of the time, about 150 Americans die from accidental Acetaminophen poisoning every year
- ▶ Oftentimes patients come to the clinic with symptoms worsened by OTC meds, such as rebound headaches, rebound congestion, or rebound reflux due to overuse of analgesics, decongestants, or antacids, respectively
- ▶ Patients discounting all antihistamines because they noticed drowsiness from first-generation Benadryl but do not realize that newer generation meds such as Claritin reduce those side effects
- ▶ In most communities there is a need for patient education on the indications, side effects, and risks of OTC meds, one approach to address this need is to have a teaching session for patients in a setting that is most audience inclusive such as schools

Public Health Cost

- ▶ If all OTC meds became prescription meds, the surge in doctor's visits would require 55,000 additional full-time health care providers in the US
- ▶ The changing of smoking cessation drugs to OTC status has increased their use by 85%, the resulting reduction in smoking has reduced health care cost by \$2 billion per year
- ▶ OTC meds in the US offer \$102 billion in annual savings
- ▶ **OVERALL OTC MEDS REDUCE PUBLIC HEALTH COST - UNDERSCORING THEIR VALUE**
 - ▶ Directed education about OTC meds can reduce the public health cost even further
 - ▶ OTC meds comprise a significant proportion of meds that are used incorrectly, resulting in 9 million hospital admissions and 18 million ER visits per year, with an annual excess cost of \$10 billion
 - ▶ In Danbury, 10% of high school students have used OTC meds one or more times during their lives to get high
 - ▶ On a weekly basis in Dr. Ferreira's office, there were on average 10 patients that received a treatment plan of supportive therapy with OTC meds, having not tried anything prior to coming in, with background knowledge these patients would have benefited from knowing what medicine to take whether it was a muscle ache or viral URI, potentially saving themselves a trip to the doctor's office and fewer days of missed work

Community Perspective

- ▶ In-person interview with [Name Withheld], Pharm.D., Rite Aid Pharmacy Manager
 - ▶ Finds that misunderstanding of drug indications and proper dosage is common with many seniors that come to the pharmacy, at times has to remind patients that they should not be taking a certain analgesic because they are on Coumadin
 - ▶ Has had incidents where parents do not read the medication label thoroughly and end up giving adult doses to children
 - ▶ Supports current policy of Dextromethorphan not being sold to patients under 18, also believes that there should be a general age limit of at least 16 for any OTC med
 - ▶ Affirms that patients should not require prescriptions for many OTC meds, however, certain meds such as Prilosec should still require a prescription due to its adverse effects
 - ▶ Finds that many patients have tremendous knowledge gaps about OTC meds and only about half the patients reach out to her with questions, however, at times even those patients can be overwhelming due to their lack of background understanding of the meds
 - ▶ Supports incorporating OTC med education into the school curriculum, believes it will reduce medication misunderstandings and allow pharmacists to be more effective in educating patients since they will have solid baseline knowledge to begin with
- ▶ In-person interview with [Name Withheld], RN, Health and Nursing Services Coordinator Danbury Public Schools
 - ▶ She has noticed that far too many kids use analgesics like candy, many kids view meds as a magical solution that will instantly address their problems, “they want a pill for everything”
 - ▶ Notes that many students are on prescription psych meds and will still take OTC meds liberally without any concern for possible medication interactions
 - ▶ Many students visit relatives abroad and return with medications that are not in their health record and can conflict with any OTC med they might grab off the shelf
 - ▶ Also notes that a lot of the students have no knowledge of what meds they take, all they know is that their “mom gives them a pill every night”
 - ▶ Supports incorporating OTC med education into the school curriculum, currently health classes are not taught by nurses but rather physical education teachers, she feels that more nurses should be staffed in schools with assigned roles of educating students on OTC meds

Intervention and Methodology

- ▶ Worked with classmate, Ian Crane, to create a PowerPoint presentation along with a supplemental handout that reviewed common OTC meds:
 - ▶ Analgesics - Aspirin, Tylenol, Advil, Aleve
 - ▶ Cold, cough, and allergy meds - Sudafed, Afrin, Robitussin, Mucinex, Bendryl, Claritin
 - ▶ Antacids and Anti-heartburn meds - TUMS, Zantac, Pepcid, Prilosec
- ▶ Presented the topic to a 9th grade classroom at Henry Abbott Technical High School in Danbury, CT
- ▶ Covered key topics about the medications:
 - ▶ Risks of OTC meds - potential for abuse, toxicity, side effects, delaying seeing the doctor, drug interactions
 - ▶ Importance of reading the label to understand dosing and contraindications, and knowing the active ingredients and their uses
 - ▶ Being aware of major issues unique to certain meds:
 - ▶ NSAIDS and rebound headaches, Aspirin and Reye's syndrome, Acetaminophen and liver failure
 - ▶ Seeing a health care provider if not noticing symptom improvement with OTC med after 1-2 weeks, reaching out to the pharmacist with questions
- ▶ Asked students to fill out a survey assessing their knowledge on the topic before and after the presentation

Results and Response

- ▶ Students were invited to participate in the presentation by volunteering answers to questions, many students did have knowledge gaps about active ingredients in medications, their uses, and side effects
- ▶ Before the presentation students did not know the difference between the uses of Acetaminophen and Aspirin, some students were not aware of how dangerous Acetaminophen can be to the liver, students lacked knowledge about different classes of cough and cold meds
- ▶ Students had a good understanding of the risks that come with OTC meds since one will not have a health care provider offering explicit instructions on the medication use
- ▶ Average scores of survey questions with the following scale: 1 (Completely Disagree) - 2 - 3 (Neutral) - 4 - 5 (Completely Agree)
 - ▶ “I feel knowledgeable about OTC meds,” average score before presentation 3.5, after presentation 4.5
 - ▶ “I feel comfortable purchasing/deciding between various OTC meds,” avg. score before 3.7, after 4.3
 - ▶ “I use OTC meds often for health related issues,” avg. score 4.1
 - ▶ “I have experienced a serious side effect from OTC meds before,” avg. score 2.1
 - ▶ “OTC meds have prevented me from needing to see a doctor at some point,” avg. score 3
- ▶ Students were engaged in the topic asking additional questions about careers in medicine and what it is like to be a medical student

Effectiveness and Limitations

▶ Effectiveness

- ▶ As evidenced by the survey results, students expressed an improvement in their understanding of the topic, they felt more knowledgeable about OTC meds and their level of comfort purchasing or deciding between different meds also improved
- ▶ Using the classroom setting to teach students about OTC meds in an interactive lecture format has efficacy for improving the students' understanding about OTC meds

▶ Limitations

- ▶ Educational presentation was targeted at only one classroom rather than every 9th grade student in Danbury, CT
- ▶ Presentation time restriction of 10 minutes limited the amount of content
- ▶ Students did indicate an increase in their knowledge level about meds along with improved comfort level deciding amongst different meds, however, these students were all part of the pre-healthcare career track in the school, meaning they were likely more interested in the topic than the average student, which likely created a selection bias further improving the survey results
- ▶ Student surveys also showed subjective improvement in their understanding of OTC meds, a survey that objectively tested the students' knowledge with content-related questions before and after the discussion may provide more reliable data of effectiveness

Recommendations for Future Projects

- ▶ Doing an OTC med presentation that is comprehensive of more medications and targeted at a broader school audience
- ▶ OTC meds are used by people of all ages making them an important topic that must be incorporated in the school curriculum, this assures that all kids will be exposed to the information that is needed to make safe purchases when they walk into any pharmacy, an important future project could be deciding in which grade students should be introduced to this topic
 - ▶ Younger students such as those in middle school will receive the benefit of becoming smarter consumers of OTC meds sooner, however, the educational content may also end up being too complex for the earlier grades
 - ▶ Older students such as those in high school may have better aptitude for the content, but it may be too late for certain individuals by then, who may have already suffered from OTC med risks such as adverse effects and abusive tendencies as already seen in 10% of students in Danbury high schools
 - ▶ Another approach could be to acquaint earlier grades to the material and then reinforce it as they advance through middle school and high school
 - ▶ Such a project could evaluate which approach is best based on objective tests that students can take at the conclusion of the educational sessions, along with determining whether this educational approach is successful in reducing OTC med abuse rate in the local community

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