

Kaopectate reformulation and upcoming labeling changes

The Food & Drug Administration wants to alert healthcare providers to formulation changes that have occurred with Kaopectate and the potential for consumers to confuse the multiple available formulations and dosing instructions under this product name. The current Kaopectate marketed is not the formulation you remember with Kaolin and Pectin. In the late 1980s or early '90s, the manufacturer reformulated the product to contain attapulgite. Then in 2003, the sponsor reformulated the product again, this time to include bismuth subsalicylate as the active ingredient. Following this 2003 reformulation, the FDA received six medication error reports involving confusion over the "new and improved" Kaopectate.

Two reports involved errors in product purchase. In one case, an emergency physician prescribed Kaopectate for a very young child. In talking with the mother of the child, the pharmacist found that the child also had a fever. The pharmacist called the physician to advise him of the change in formulation, and the physician directed the pharmacist not to fill the prescription for the child. A report of the second case describes several consumers who returned the new Kaopectate because, upon reading the label, they realized that it was not appropriate for them. Neither of the reports noted any patient harm, as the errors were intercepted before reaching the patient.

The remaining four medication error reports for Kaopectate

describe the potential for medication errors due to its reformulation as a salicylate, concerns over the lack of promotion and education on the new formulation, inadequate labeling, and packaging of the newly formulated Kaopectate. According to the reporters, the sponsor did not adequately inform healthcare providers and patients of this important reformulation.

Original Kaopectate (Attapulgite) 750 mg/15mL	Dose: Take first dose at first sign of diarrhea and after each subsequent bowel movement. Maximum six times in 24 hours
3 to 6 years	1/2 tablespoonful (7.5 mL)
6 to 12 years	1 tablespoonful (15 mL)
12 years and over	2 tablespoonfuls (30 mL)

Lastly, the currently marketed "new and improved" formulation with bismuth subsalicylate not only contains a salicylate, it also has dosing instructions for children under 12 years of age. Salicylates are not generally recommended for children because of risks of Reye's syndrome, salicylate allergy, and salicylate overdose. To further confuse matters, according to the final FDA rule on antidiarrheal monograph, effective April 17, 2004, bismuth subsalicylate will no longer be labeled with pediatric dosing instructions. Until existing supplies of the attapulgite and subsalicylate product labeled with pedi-

atric dosing instructions are depleted, all three formulations may be stored near each other in the pharmacy and possibly be confused.

Why the formulation change?

In 2003, the active ingredient in Kaopectate was reformulated to contain bismuth subsalicylate, replacing attapulgite as the active ingredient. The FDA found attapulgite efficacy data to be inadequate and, thus, attapulgite was not included as a monograph ingredient in the April 17, 2003, final rule. Only bismuth subsalicylate and kaolin are generally recognized as safe and effective as OTC antidiarrheal drugs in the final rule.

Moreover, in the changes of the April 17, 2003, final rule, bismuth subsalicylate may only be labeled for adults and children 12 years and over because data are needed to support use in children under 12 years of age.

What are the safety concerns?

In light of the formulation changes that have already occurred and the future labeling changes with Kaopectate, there are several important factors to be considered by healthcare practitioners to appropriately alert and educate unwary consumers.

•Formulation change confusion

The sponsor, Pharmacia Consumer Healthcare, notes that the older formulation of Kaopectate with attapulgite will remain in stores until sold. Thus, stores will likely have both formulations of Kaopectate on their shelves. A consumer not realizing the formulation change may unknowingly grab the new bottle,

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and ingest a salicylate-containing product. Although the new formulation contains a salicylate warning statement on the label, it is not prominent and could be easily overlooked. This could lead to serious medical consequences such as Reye's syndrome, salicylate allergy, and salicylate overdosage. Like aspirin, bismuth subsalicylate products could potentially have many drug-to-drug and drug-to-disease interactions.

For example, bismuth subsalicylate could have interactions with anticoagulants, hypoglycemic agents, and nonsteroidal anti-inflammatory drugs (NSAIDs) and other anti-inflammatory medications. Medical conditions such as gout, stomach ulcer, kidney disease, and bleeding problems could become more problematic with the use of a salicylate-containing product. A medical scenario was published in the ISMP Medication Safety Alert (March 20, 2003). "Bismuth Subsalsalicylate also can lead to darkened or black-colored stools. A patient reporting this finding might be misdiagnosed with sustained gastrointestinal bleeding if the practitioner is unaware of the change in formulation."

•Confusion with pediatric dosing

Following the final rule's effective date of April 19, 2004, bismuth subsalicylate may only be labeled for adults and children 12 years and over. However, products that are already in the store (i.e., with labeling for children under 12 years old) can continue to be sold, as there will not be a recall. As a result, there will be two versions of the newly formulated Kaopectate with different pediatric dosing requirements, which may further confuse healthcare practitioners and consumers.

Here are two examples of possi-

ble pediatric dosing errors which may occur due to the formulation change and the labeling change with Kaopectate.

A consumer not realizing the formulation change from attapulgite to bismuth subsalicylate may unknowingly grab the new bottle, and give a child a larger dose than required, thinking that the product is still the old Kaopectate with attapulgite. For example, a six-year-old child's dose is one tablespoonful (15 mL) for the Kaopectate with attapulgite, whereas the dose is two teaspoonfuls (10 mL) for Kaopectate with bismuth subsalicylate. See tables (page 58 and below) for the different

New & improved Kaopectate (Bismuth subsalicylate) 262 mg/15 mL	Dose: Repeat dose every 1/2 hour-1 hour as needed, to a maximum of eight doses in a 24-hour period.
Three to five years	1 teaspoonful (5 mL)
Six to eight years	2 teaspoonfuls (10 mL)
9 to 11 years	1 tablespoonful (15 mL)
12 years and over	2 tablespoonfuls (30 mL)

dosage recommendations between the original and new Kaopectate.

Secondly, consumers will likely get mixed dosing information because one version of Kaopectate with subsalicylate states that it is appropriate for children under 12 years of age and yet another version of Kaopectate with bismuth subsalicylate is not labeled for children under 12 years of age. Based on the old product with attapulgite and the bismuth subsalicylate with pediatric dosing labels, consumers may still give the product to children under 12 or at an inappropriately high dose, which may result in harm.

In order to avoid confusion with the new formulation and the product's labeling changes, here are some measures pharmacists can take:

•Be aware of the new active ingredient and its potential adverse

effects. The current label contains information to convey the change in active ingredient but this information is subtle and can easily be overlooked.

•Be aware that, potentially, there may be three versions of Kaopectate on the pharmacy shelf: One version of Kaopectate with attapulgite, a second version of Kaopectate with bismuth subsalicylate (with pediatric dosing instructions), and a third version of Kaopectate with bismuth subsalicylate without pediatric dosing.

•Provide shelf talkers or some other visual aid to alert consumers about the change in ingredient. For example, the shelf talker might say, "This product has been reformulated and now contains a Salicylate, a new active ingredient. If you have questions, talk to the Pharmacist." In addition, physically separate the different formulations to minimize potential confusion for consumers.

•Advise patients not to remove the back panel peel-up label, which contains all the Drug Facts. The peel-up label could easily tear or be removed and discarded. This is problematic as the peel-up label contains the drug warnings, dosage directions, detailed salicylate warnings, lot number, and expiration date.

If you become aware of medication errors involving Kaopectate or other products, please report them to the FDA MedWatch program at www.fda.gov/medwatch. In addition, medication errors can be reported to the USP Medication Errors Reporting Program in cooperation with the Institute for Safe Medication Practices at 1-800-23-ERROR or at www.usp.org.

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