Opioid deaths are estimated at 0.1 and 3.7 per 100 000 children and adolescents/young adults, respectively, and nearly all unintentional childhood exposures to opioids are to other family members’ medications. Half of adolescents who misuse prescription opioids acquire them from their own previous prescriptions, friends, or family members and 8% share their prescriptions with others. Given increasing public health concerns, the American College of Physicians recommends that an evidence-based defined maximum opioid dosage and duration of treatment be developed and followed, which, in part, could reduce the amounts of unused drugs available for adverse events and misuse. Therefore, we compared the opioid doses dispensed to children with the amount used following minor outpatient procedures to estimate the unused drugs remaining in children’s homes and inform future opioid prescribing.

Methods | This study was part of a larger study on parental analgesic decision making approved by the Institutional Review Board at the University of Michigan. Parents provided written informed consent and prospectively recorded all analgesics they gave their children (aged 3-17 years) as well as pain scores across 4 days following elective procedures at a tertiary care children’s hospital from March 1, 2013, to August 31, 2013. Leftover opioids were estimated by calculating the number of doses and treatment days remaining from the dispensed amount if parents continued giving the opioid at the day 3 dosing frequency.

Results | Of the 223 parents who returned diaries, 14% gave zero doses of the dispensed opioid. Opioid dosing significantly decreased each day (mean difference, −0.7) in concert with decreasing pain intensity (mean difference, −1.2: P < .001). By day 3, 34% of parents gave only 1 to 2 doses and 39% had discontinued the opioid altogether and provided only over-the-counter analgesics. The Table shows leftover opioid doses and estimated weeks of treatment remaining by drug and service (nonsignificant differences). Given decreasing pain, early tapering, and discontinuation, most children (79%) had enough

### Table. Leftover Opioid Doses and Estimated Days of Treatment Remaining

| Variable | Mean (95% CI) | Estimated Treatment Days Remaining (If Continued at Day 3 Dosing)
|---|---|---
| **Doses Dispensed** | **Leftover Opioid Doses (Actual on Day 4)** | **(If Continued at Day 3 Dosing)** |
| **Opioids prescribed** | | |
| Hydrocodone/acetaminophen | 44.3 (40.8-47.8) | 37.7 (34.2-41.2) | 25.7 (21.0-30.3) |
| Codeine/acetaminophen | 32.3 (23.9-40.8) | 28.6 (20.1-37.2) | 28.7 (17.6-39.8) |
| Oxycodone | 35.4 (26.6-44.2) | 31.9 (22.8-41.0) | 26.2 (17.8-34.6) |
| Overall | 35.7 (32.7-38.8) | 26.0 (22.2-29.7) | |
| **Procedures** | | |
| Tonsillectomy | 52.2 (47.7-56.6) | 43.8 (39.1-48.4) | 35.0 (26.8-43.3) |
| Musculoskeletal | 33.6 (27.9-39.2) | 29.6 (23.8-35.5) | 22.8 (17.7-27.9) |
| Minor abdominal, genitourinary tract, or peripheral procedures | 31.3 (26.7-35.9) | 27.9 (23.2-32.6) | 27.2 (20.1-33.7) |

Abbreviation: NA, not applicable.

* If opioids were discontinued by day 3, days were calculated as if 1 dose/day.

* Written by pediatric physicians to be given as needed: 82% every 4 to 6 hours; 11% every 4 hours; and 7% every 6 hours.

* This group was informed to taper the prescribed opioid after a few days. Of these patients, 13% were receiving maximum daily doses where only 1 additional week of treatment remained. However, with the refill as prescribed, an additional 3 to 4 weeks of treatment remained.
leftover opioid doses after day 3 to treat their acute pain for more than 2 to 3 additional weeks.

Discussion | Our findings showed the potential mismatch between the amounts of opioids prescribed/dispensed and the amounts used following minor pediatric ambulatory procedures associated with acute pain. Most children received less than 50% of their prescribed opioid doses because parents quickly tapered opioids, switched to nonopioids, or discontinued analgesics during the first few postprocedure days. This left a considerable amount of unused prescribed opioids in the homes of children who were prescribed these agents for acute pain. This suggested mismatch between dispensed and used prescription opioids can inadvertently contribute to risky behavior and, therefore, begs for broad intervention.

The recommendation by the American College of Physicians that physicians develop guidelines to limit the amount of opioids prescribed is a step in the right direction. Furthermore, because it was unclear whether parents in our setting were informed about the risks of how to dispose of unused opioids, such education is clearly needed. The Drug Enforcement Agency recently expanded their drug take-back program and legally authorized pharmacies to accept and dispose of patients’ unused prescription medications. In accordance with recommendations from the US Food and Drug Administration, pediatric prescribers and pharmacists should educate parents and adolescents of the importance of proper use, storage, and disposal of these medications. Better alignment of opioid prescriptions with the pain needs of patients and disposal education is warranted to appropriately manage pain while limiting the amounts of unused opioids available for accidental overdose, diversion, and misuse.

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Drafting of the manuscript: Voepel-Lewis, Wagner.

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Parental Absence From Clinic Predicts Human Immunodeficiency Virus Treatment Failure in Adolescents

It is estimated that more than 2.1 million adolescents (10-19 years of age) live with human immunodeficiency virus (HIV) in low-income and middle-income countries. When compared with both adults and younger children, HIV-infected adolescents have higher rates of nonadherence, virologic failure, and death. As they age, adolescents generally increase their health care–related autonomy. Adolescents may attend a clinic with or without an adult caregiver (parent). The relationship between parental attendance at clinic visits and adolescent chronic disease outcomes is unknown. We hypothesized that routine clinic attendance without a parent would be associated with the risk of HIV treatment failure, particularly in younger adolescents.

Methods | Three hundred predominantly perinatally HIV-infected adolescents (10-19 years of age) receiving HIV treatment at the Botswana-Baylor Children’s Clinical Centre of Excellence were followed up at their quarterly clinic visits in a longitudinal adherence study beginning in 2012. Enrollment was stratified to include 50 adolescents with detectable viral loads (VLs) at entry, approximating the proportion of patients in the underlying population with detectable VLs. Human immunodeficiency virus RNA levels (VLs) were obtained at each visit. Institutional review board approval was obtained from the Botswana Health Research Development Committee, the University of Pennsylvania Institutional Review Board, and the Baylor College of Medicine Institutional Review Board. A parent or guardian was present at the study entry visit to consent to each adolescent’s participation. Written informed consent was obtained from the parents and written assent was obtained from the adolescents. After the initial visit, parents were present only if they would otherwise attend routine clinic visits. The relative risk of virologic failure (VL ≥ 400 copies/mL) at 3 months or 6 months of follow-up was calculated for adolescents with and without a parent present at the 3-month study visit. Multivariable logistic regression was used to assess for confounding by age, sex, time receiving treatment, and orphan status. Linear regression was used to evaluate the likelihood of virologic failure with increasing age for those with and without a parent present.