RESEARCH LETTER

Dispensing of Glucagon-Like Peptide-1 Receptor Agonists to Adolescents and Young Adults, 2020-2023

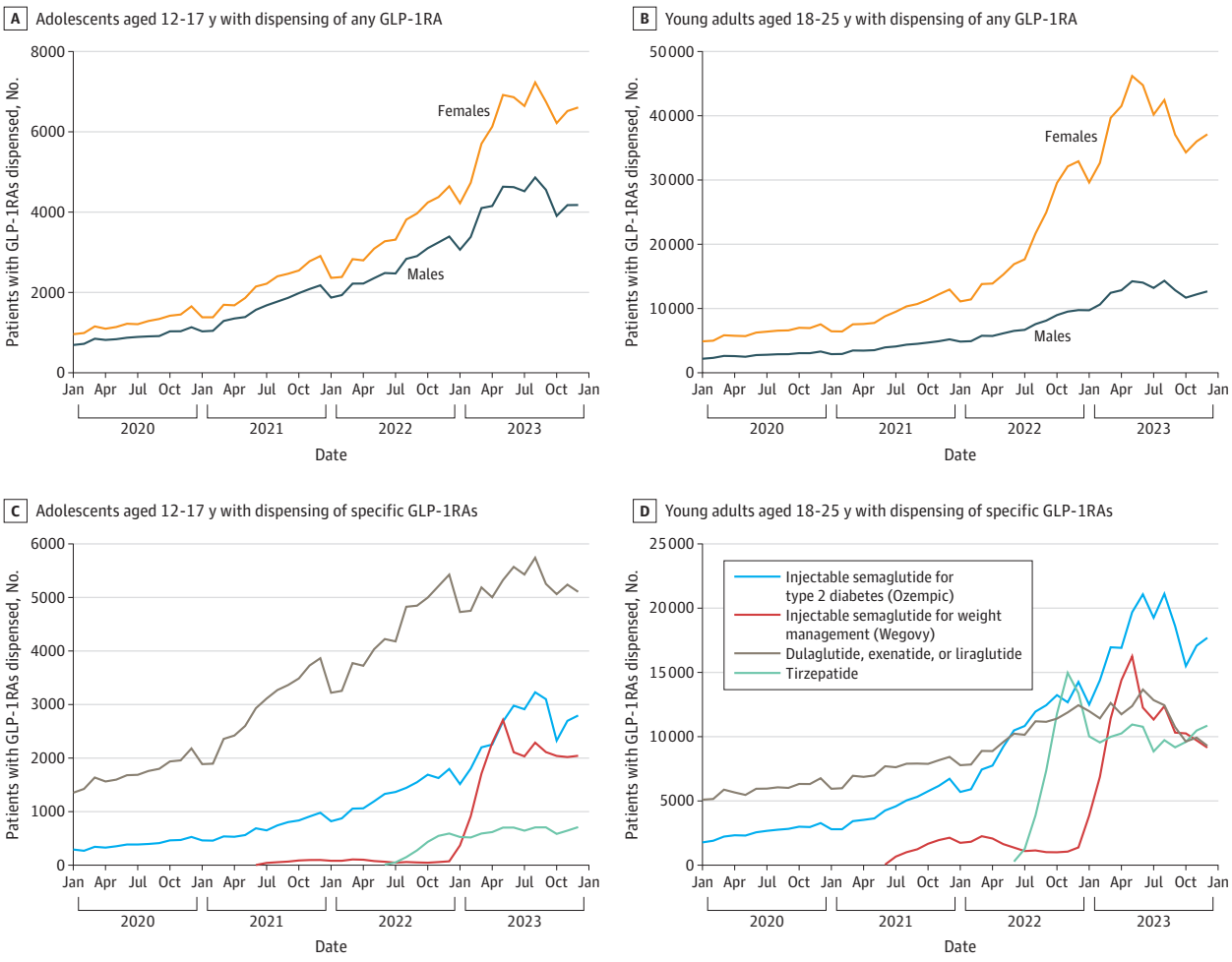
Glucagon-like peptide-1 receptor agonists (GLP-1RAs) were approved for type 2 diabetes in 2005 and for weight management in 2014.[1] Interest in these drugs has surged, spurred partly by the approval of semaglutide for weight management in 2021.[1]

Supplemental content

Assessing GLP-1RA dispensing to adolescents (aged 12-17 years) and young adults (aged 18-25 years) is important given the absence of data regarding the health effects of long-term use[2] and the long time horizon over which costs of GLP-1RA use could accrue. This study assessed GLP-1RA dispensing nationally during 2020 to 2023 to adolescents and young adults.

Methods | Data on the dispensing of GLP-1RAs and drugs other than GLP-1RAs between January 2020 and December 2023 were obtained from the IQVIA Longitudinal Prescription Database, which reports prescriptions from 93.6% of US retail pharmacies. GLP-1RAs included dulaglutide, exenatide, liraglutide, semaglutide, and tirzepatide. The first 3 are approved for type 2 diabetes in adolescents. All are approved for this indication in adults.[1,3] Liraglutide and semaglutide are approved for weight management in adolescents and

Figure. Monthly Number of US Adolescents and Young Adults With ≥1 Dispensed Prescription for Any Glucagon-Like Peptide-1 Receptor Agonist (GLP-1RA) and Specific Medications, January 2020-December 2023



Tirzepatide is only approved in adults, but off-label use in adolescents is possible. Due to low numbers, dispensing of the oral formulation of semaglutide approved for type 2 diabetes is not shown.

Table. Patient and Prescription Characteristics Based on the Last Dispensed GLP-1RA Prescription in 2023

	Adolescents aged 12-17 y	Young adults aged 18-25 y
Patient characteristics		
No. of patients	30 947	162 439
Age, mean (SD), y	15.2 (1.6)	22.4 (2.2)
Sex, No. (%)		
Female	18 583 (60.0)	124 093 (76.4)
Male	12 360 (39.9)	38 293 (23.6)
Unknown	4	53
Region, No. (%)		
Northeast	5170 (16.7)	28 200 (17.4)
Midwest	6093 (19.7)	31 740 (19.5)
South	14 147 (45.7)	75 284 (46.3)
West	5537 (17.9)	27 215 (16.8)
Prescription characteristics		
Drug type		
Injectable semaglutide approved for type 2 diabetes (Ozempic)[a]	7628 (24.7)	55 153 (34.0)
Injectable semaglutide approved for weight management (Wegovy)	6025 (19.5)	35 189 (21.7)
Oral semaglutide approved for type 2 diabetes (Rybelsus)	587 (1.9)	4768 (2.9)
Tirzepatide[b]	1824 (5.9)	31 904 (19.6)
Dulaglutide	6404 (20.7)	18 825 (11.6)
Liraglutide	8019 (25.9)	16 085 (9.9)
Exenatide	460 (1.5)	515 (0.3)
Payer type, No. (%)		
Commercial	13 518 (43.7)	108 465 (66.8)
Medicaid	14 866 (48.0)	42 711 (26.3)
Medicare	2005 (6.5)	6853 (4.2)
Cash	558 (1.8)	4410 (2.7)
Prescriber specialty, No. (%)		
Endocrinology[c]	10 111 (32.7)	22 281 (13.7)
Nurse practitioner[d]	8177 (26.4)	53 678 (33.0)
Family medicine	3821 (12.3)	37 246 (22.9)
Pediatrics	3415 (11.0)	2067 (1.3)
Internal medicine	1905 (6.2)	20 309 (12.5)
Physician assistant[d]	1971 (6.4)	16 058 (9.9)
Obstetrics and gynecology	130 (0.4)	2438 (1.5)
Other specialty	1417 (4.6)	8362 (5.1)

Abbreviation: GLP-1RA, glucagon-like peptide-1 receptor agonist.

[a] Ozempic is only approved for type 2 diabetes in adults, but it can be used off label for weight management in both adolescents and adults.

[b] Includes the formulations approved for type 2 diabetes (Mounjaro) and weight management (Zepbound). Tirzepatide is only approved in adults but can be used off label in adolescents.

[c] Includes pediatric and adult endocrinology.

[d] The database does not report the specialty of nurse practitioners and physician assistants or whether they are prescribing in collaboration with physicians.

adults.[1,4] Tirzepatide is only approved for this indication in adults.[5] Semaglutide formulations include injectable and oral medications for type 2 diabetes (Ozempic and Rybelsus) and an injectable medication for weight management (Wegovy). Because data were deidentified, the University of Michigan Institutional Review Board exempted analyses from review.

QVIA data include a patient-level identifier, which was used to calculate the monthly number of adolescents and young adults with dispensing of any GLP-1RA and specific GLP-1RAs overall and by sex between January 2020 and December 2023. For comparison, the monthly number of adolescents and young adults with dispensing of drugs other than GLP-1RAs was calculated. Among patients with GLP-1RA dispensing in 2023, descriptive statistics were used to assess sex, region, payer type, and prescriber specialty of their last dispensed prescription. Analyses used R version 4.0.3 (R Foundation). The eMethods in Supplement 1 include additional details.

Results | Between 2020 and 2023, the number of adolescents and young adults with GLP-1RA dispensing increased from 8722 to 60 567 (594.4%). For comparison, the number with dispensing of drugs other than GLP-1RAs decreased from 12 683 040 to 12 282 525 (−3.1%). The number of male adolescents with GLP-1RA dispensing increased from 692 to 4178 (503.8%) and the number of female adolescents increased from 961 to 6607 (587.5%). The number of male young adults with GLP-1RA dispensing increased from 2180 to 12 667 (481.1%) and the number of female young adults increased from 4886 to 37 111 (659.4%) (**Figure**, A and B). Among adolescents, the number who were dispensed dulaglutide, exenatide, or liraglutide was greatest throughout the period and increased steadily. The number who were dispensed injectable semaglutide approved for weight management increased sharply in 2023. Among young adults, the number who were dispensed dulaglutide, exenatide, or liraglutide was greatest in 2020 and 2021, but was surpassed by the number who were dispensed injectable semaglutide for type 2 diabetes in 2022 and 2023. The number who were dispensed tirzepatide increased sharply in 2022 and the number who were dispensed injectable semaglutide for weight management increased sharply in 2023 (Figure, C and D).

Among 30 947 adolescents dispensed a GLP-1RA in 2023, 15 583 (60.0%) were female and 14 147 (45.7%) resided in the South. Among 162 439 young adults dispensed a GLP-1RA in 2023, 124 093 (76.4%) were female and 75 284 (46.3%) resided in the South (**Table**). In both age groups, the last dispensed prescription in 2023 was most commonly for injectable semaglutide for type 2 diabetes. For adolescents, payer type was most often Medicaid (14 866 [48.0%]) and prescribers were most commonly endocrinologists (10 111 [32.7%]) and nurse practitioners (8177 [26.4%]). For young adults, payer type was most often commercial insurance (108 465 [66.8%]) and prescribers were most commonly nurse practitioners (53 678 [33.0%]) and family medicine physicians (37 246 [22.9%]).

Discussion | Between 2020 and 2023, the number of adolescents and young adults with GLP-1RA dispensing increased substantially. In contrast, the number with dispensing of other drugs decreased. Increases in GLP-1RA dispensing were greatest for females, highlighting the importance of

educating patients and prescribers on sex-specific safety risks (eg, concerns during pregnancy[6]). Efforts to promote safe and appropriate prescribing should include endocrinologists, family medicine physicians, and nurse practitioners given their prominent roles in GLP-1RA dispensing.

Limitations of this study include lack of data on prescription indication, including whether it was used off label. However, the increase in dispensing of injectable semaglutide for weight management suggests increasing use for this indication.

Evaluation of the long-term safety, efficacy, and cost-effectiveness of GLP-1RAs in adolescents and young adults is needed. Data on dispensing in adults, which were not available for analysis, would help contextualize results in younger individuals.

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HEALTH AND THE 2024 US ELECTION

Shingles Vaccination in Medicare Part D After Inflation Reduction Act Elimination of Cost Sharing

Although vaccinations prevent morbidity and mortality among Medicare beneficiaries, uptake of vaccines recommended by the Advisory Committee on Immunization Practices covered by Medicare Part D (ie, shingles, tetanus, diphtheria, pertussis, and hepatitis A and B) is suboptimal.[1] Unlike commercially insured individuals who have no cost sharing for recommended vaccinations, in 2021, Medicare beneficiaries receiving vaccines covered under Medicare Part D paid $234 million out of pocket (OOP), with a mean OOP cost of $76.94 for shingles vaccines.

Supplemental content

To improve affordability of vaccines for Medicare beneficiaries, the Inflation Reduction Act (IRA) eliminated cost sharing for vaccines covered by Part D beginning in January 2023.[2] This study evaluated the association of this zero cost-sharing policy on the use of shingles vaccinations, which account for more than 90% of Part D vaccinations.[1]

Methods | We used monthly data on shingles vaccinations dispensed at retail pharmacies (where approximately 80% of shingles vaccinations are administered)[3] between January 2022 and December 2023 from IQVIA's National Prescription Audit, which includes 92% of US retail pharmacies. There were no