An analysis of solid tumor oncology patients' respiratory vaccination rates in accordance with the American Society of Clinical Oncology (ASCO) guidelines

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BACKGROUND

- Cancer is a complex disease, requiring management that very often extends well beyond just treating the malignancy itself.
- Patients with cancer often experience compromised immune systems due to a variety of factors including disease progression leading to chronic inflammation and/or direct cancer treatments that impair the immune system. As a result, patients are often at a higher risk of infection making addressing vaccine preventable diseases paramount.
- In 2024, ASCO updated their guidelines on vaccine recommendations in oncology patients.

Table 1. Select 2024 ASCO Guidelines for Vaccinations

Vaccine	Recommended Age	Schedule
Influenza[a]	All ages	Annually
RSV	60 years and older	Once
COVID-19	All ages	As per the latest CDC schedule for immunocompromised[b]
Pneumococcal vaccine	19 years and older	One dose PCV20[c] OR One dose of PCV15 followed by PPSV23 8 weeks later

[a]Live attenuated influenza vaccine, which is administered as a nasal spray, cannot be given to patients with cancer
[b]https://www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html#immunocompromised
[c]Patients who have previously received PCV13 only can receive one dose of PCV20 after an interval of 1 year

OBJECTIVE

- To describe vaccination rates for respiratory diseases in patients with select solid tumor malignancies in accordance with ASCO guidelines.

METHODS

- A retrospective, cohort analysis was conducted using Optum's de-identified Clinformatics® Data Mart Database.
- Adult patients (≥ 18 years), unless otherwise specified by ASCO guidelines (RSV > 60 years, Pneumococcal > 19 years), with an ICD-10-CM diagnosis code for a solid tumor malignancy as the index event (breast, colon, lung, prostate) between 4/1/2024 and 3/31/2025 were included.
- For each index event within each of the four solid tumor types, a vaccine specific pre/post index event period was identified looking for a medical and/or pharmacy claim representing administration of each of the 4 respiratory vaccinations (Influenza, COVID-19, RSV, Pneumococcal) using 2024 ASCO recommendations as guidance.

Table 2. Patient Selection Criteria

Parameter	Influenza	COVID-19	RSV	Pneumococcal
Inclusion	- Age >/= 18 Years	- Age >/= 18 Years	- Age >/= 60 Years	- Age >/= 19 Years
Exclusion	- Pregnancy (at any point during index or look back or look forward)	- Pregnancy (at any point during index or look back or look forward)	- Pregnancy (at any point during index or look back or look forward)	- Pregnancy (at any point during index or look back or look forward)
Index Event	Claim for selected Solid Tumor Malignancy[a] over 1-Year time frame			
Event of Interest	Influenza vaccine administration	COVID-19 vaccine administration[b]	RSV vaccine administration	Pneumococcal vaccine administration[c]
Look Back (Pre Index Event)	1 Year from Index Event	1 Year from Index Event	To June 1, 2023 (FDA Approval Date)	5 Years from Index Event
Look Forward (Post Index Event)	1 Year from Index Event	1 Year from Index Event	1 Year from Index Event	1 Year from Index Event

[a]Breast, Colorectal, Lung, Prostate
[b]A single claim of a COVID-19 vaccine administration was counted as "vaccinated" regardless of specific recommendation schedule (i.e., some schedules recommend initial and booster(s))
[c]A single claim of any Pneumococcal vaccine administration was counted as "vaccinated"

RESULTS

Table 3. Patient Demographics

	Breast (n=113,428)	Colorectal (n=32,818)	Lung (n=62,576)	Prostate (n=85,642)	Total (n=294,464)
Gender, n (%)					
Female	111,832 (98.6)	16,570 (50.5)	33,707 (53.9)	440 (<1)	162,549 (55.2)
Male	1,558 (1.4)	16,242 (49.5)	28,863 (46.1)	85,183 (>99)	131,846 (44.8)
Unknown	37 (<1)	6 (<1)	6 (<1)	19 (<1)	68 (<1)
Mean Age					
Years	69.8	70.9	72.5	72.7	71.3
Age Group, n (%)					
18-49	7,960 (7)	1,782 (5.4)	833 (1.3)	583 (<1)	11,158 (3.8)
50-64	20,097 (17.7)	5,103 (15.6)	7,386 (11.8)	10,084 (11.8)	42,670 (14.5)
≥ 65	85,371 (75.3)	25,933 (79)	54,357 (86.9)	74,975 (87.5)	240,636 (81.7)
Race/Ethnicity, n (%)					
Asian	3,296 (2.9)	840 (2.6)	383 (<1)	1,797 (2.1)	6,317 (2.1)
Black	16,521(14.6)	4,534 (13.8)	8,235 (13.2)	14,319 (16.7)	43,609 (14.8)
Hispanic	10,339 (9.1)	3,092 (9.4)	3,854 (6.2)	7,099 (8.3)	24,385 (8.3)
White	67,330 (59.4)	19,565 (59.6)	42,228 (67.5)	49,121 (57.4)	178,246 (60.5)
Missing/Unknown	15,941 (14.1)	4,786 (14.6)	7,875 (12.6)	13,306 (15.5)	41,908 (14.2)
Payer Type, n (%)					
Commercial	31,667 (27.9)	7,515 (22.9)	9,144 (14.6)	17,359 (20.3)	65,685 (22.3)
Medicare	81,761 (72.1)	27,266 (83.1)	53,432 (85.4)	68,283 (79.7)	228,779 (77.7)

Table 4. Overall Vaccination Rates

	Influenza[a]	COVID-19[a]	RSV[b]	Pneumococcal[b]
Breast Cancer (n=113,428)	25%	22%	15%	18%
Colorectal Cancer (n=32,818)	19%	16%	12%	18%
Lung Cancer (n=62,576)	21%	17%	19%	23%
Prostate Cancer (n=85,642)	24%	22%	13%	16%
Total (n=294,464)	23%	20%	15%	18%

[a]Influenza and COVID overall vaccination rates are for the 1-year post index period
[b]RSV only includes those 60 years and older. Pneumococcal only includes those 19 years and older (See Figure 1.)

Table 5. Vaccination Rates by Age Group (Age in Years)

	Vaccine	18-49*	50-64*	65+	Total
Breast Cancer	Influenza	22.8%	28.1%	42%	38.2%
	COVID-19	17.4%	23.1%	49.3%	42.4%
	RSV	N/A	3.8%	18.5%	14.6%
	Pneumococcal	3.9%	9.8%	21.7%	18.3%
Colorectal Cancer	Influenza	18.6%	22.1%	34.3%	31.5%
	COVID-19	14.9%	16.3%	37.6%	33.1%
	RSV	N/A	2.9%	14.8%	12.1%
	Pneumococcal	4.7%	9.2%	20.1%	17.6%
Lung Cancer	Influenza	19.6%	29.5%	38.1%	36.9%
	COVID-19	12.9%	20.6%	41.6%	38.7%
	RSV	N/A	7.2%	20.4%	18.5%
	Pneumococcal	7.3%	16.5%	23.9%	22.8%
Prostate Cancer	Influenza	18.5%	24.8%	34.7%	33.4%
	COVID-19	9.8%	20.9%	42.7%	39.9%
	RSV	N/A	6.7%	14.8%	13.4%
	Pneumococcal	4.3%	9.2%	17.4%	16.3%
Total	Influenza	21.6%	26.8%	38%	35.8%
	COVID-19	16.3%	21.3%	44.2%	39.8%
	RSV	N/A	4.2%	17.4%	14.8%
	Pneumococcal	4.3%	10.7%	20.7%	18.6%

*RSV only includes those 60 years and older. Pneumococcal only includes those 19 years and older (See Figure 1.)

Table 6. Vaccination Rates Pre/Post Index Event

	Breast	Colorectal	Lung	Prostate	Total	Change
Influenza - Pre	13%	12.5%	16.3%	9.5%	12.6%	+10.6%
Influenza - Post	25.2%	19.1%	20.6%	23.9%	23.2%	
COVID-19 - Pre	20.6%	17.5%	21.9%	17.6%	19.7%	+0.5%
COVID-19 - Post	21.8%	15.5%	16.9%	22.3%	20.2%	
RSV – Pre	10.6%	10.9%	14.2%	9.2%	10.8%	-6.7%
RSV – Post	4.1%	3.9%	4.4%	4.2%	4.1%	
Pneumococcal – Pre	14.2%	14%	19.1%	12.2%	14.6%	-10.7%
Pneumococcal – Post	4.2%	3.6%	3.6%	4.1%	3.9%	
Average – Pre	14.6%	13.2%	17.9%	12.1%	14.4%	-1.6%
Average – Post	13.8%	10.3%	11.4%	13.6%	12.8%	

Table 7. Interaction[a] with Specialty Pharmacy within Index Period

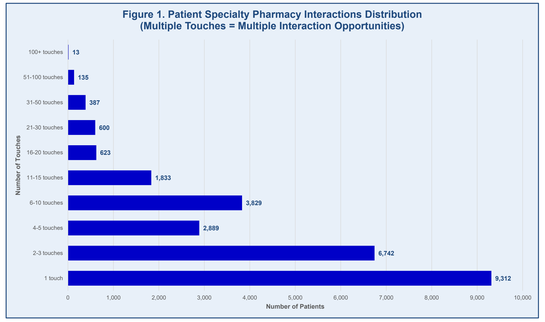
	n (%)
Breast Cancer (n=113,428)	9,061 (8)
Colorectal Cancer (n=32,818)	3,598 (11)
Lung Cancer (n=62,576)	6,962 (11.1)
Prostate Cancer (n=85,642)	6,742 (7.9)
Total (n=294,464)	26,363 (9)

[a]Interaction defined as a claim from a location identified as a specialty pharmacy

Table 8. Top 5 states with highest number of patients with specialty pharmacy interaction within Index Period

	n (%)
Florida (n=28,080)	2,965 (10.6)
Texas (n=25,337)	1,830 (7.2)
New York (n=11,630)	1,415(12.2)
North Carolina (n=13,940)	1,319 (9.5)
Louisiana (n=9,306)	1,267 (13.6)

Figure 1. Patient Specialty Pharmacy Interactions Distribution (Multiple Touches = Multiple Interaction Opportunities)



CONCLUSIONS

- This analysis shows that there is a noteworthy gap in care for this vulnerable population.
- This gap is likely due to a combination of factors including, but not limited to, discordant care, vaccine hesitancy, patient and provider awareness, gaps in provider-patient communication, and others.
- Highest vaccination rate was seen for influenza vaccination rates in patients with breast cancer (25%).
- Lowest vaccination rate was seen for RSV vaccination in patients with colorectal cancer (12%).
- RSV was the lowest vaccination rate in 3 out of the 4 cancer types (exception is Lung Cancer). This low could be due to the relatively recent FDA approvals of RSV vaccines in May 2023.
- Vaccination rates increased as age group increased in each cancer type and vaccine. This suggests that vaccinations may have largely been due to routine vaccine schedule recommendations according to age as opposed to specific recommendations in oncology patients.
- Vaccination rates changed only modestly from pre index event to post (average +5.5%) in Influenza and COVID potentially suggesting little emphasis was given on vaccination post diagnosis.
- The observed drop in the Pneumococcal vaccination rate from pre to post (-10.7%) likely represents extended pre index event window (~5 years) and potentially a lack of emphasis on vaccination post diagnosis.
- Approximately 1 out of every 10 patients (9%) identified in the index period as having cancer, had an interaction with a specialty pharmacy during that same period. That number may increase dramatically in the time post diagnosis as their treatment evolves.
- Approximately 65% of patients who had an interaction with a specialty pharmacy had more than one during the measured time representing multiple opportunities to interact. This creates a strategic opportunity to further activate specialty pharmacists as integrated care partners by embedding vaccine education, assessment, and coordination into routine specialty pharmacy workflows.
- Additional research is likely necessary to better understand this patient population, barriers, and strategies to improve vaccination rates in accordance with clinical guidelines.

LIMITATIONS

- Claims databases have the potential for coding errors and missing data.
- Due to limitations with claims data, we were not able to model the exact ASCO guidelines.
- Generalizability of results may be limited to the population from the data source.
- This analysis was conducted on oncology patients only and did not compare vaccination rates to the general population. Further investigation is likely warranted to see the impact of an oncology diagnosis on vaccination rates.
- ASCO is just one of the available guidelines for vaccination recommendations and may not fully align with others used in clinical practice (e.g., IDSA, CDC)
- Vaccination rates may not be fully captured in this analysis (e.g., vaccines given at health fairs and employee clinics)
- Vaccination rates for Pneumococcal may not be fully captured in this analysis. This is secondary to the time frame used and subsequent availability of multiple types of pneumococcal vaccines.
- Analysis was done with data from as early as April 1, 2023, to as late as March 31, 2026. Much of that time frame predates the 2024 ASCO guideline update. It is unknown what the impact of the change in those guidelines will have on vaccination rates.

REFERENCES

- American Cancer Society 2024, American Cancer Society Website, accessed 25 April 2025 https://www.cancer.org/cancer/survivorship/long-term-health-concerns/cancer-as-a-chronic-illness.html
- Kamboj M, Bohlke K, Baptiste DM, Dunleavy K, Fueger A, Jones L, Kelkar AH, Law LY, LeFebvre KB, Ljungman P, Miller ED, Meyer LA, Moore HN, Soares HP, Taplitz RA, Woldetsadik ES, Kohn EC. Vaccination of Adults With Cancer: ASCO Guideline. J Clin Oncol. 2024 May 10;42(14):1699-1721. doi: 10.1200/JCO.24.00032. Epub 2024 Mar 18. PMID: 38498792; PMCID: PMC11095883.

DISCLOSURES

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