

ACS Cancer Conference 2025

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Impact of COVID-19 Diagnosis and Treatment for Lung Cancer in the US National Cancer Database (NCDB) from 2014 to 2022

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Disclosures

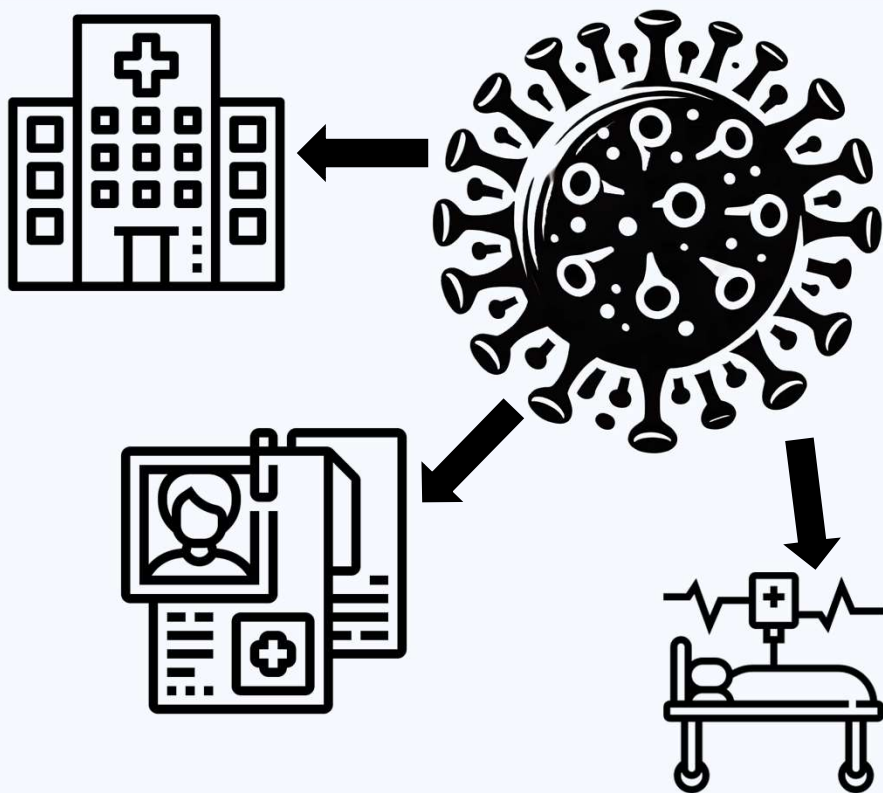
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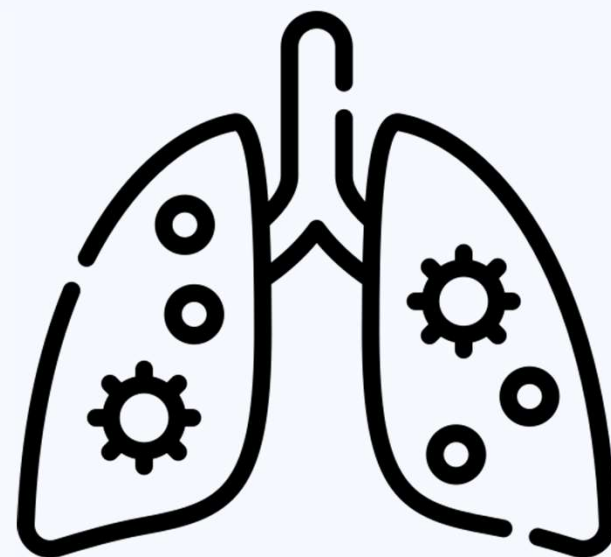
COVID-19 pandemic impacted the health systems and cancer care



- The COVID-19 pandemic impacted healthcare services, including cancer diagnostics and management.
- Individuals with cancer were observed to have a higher risk of severe events
- Cancer diagnostics and surgery have been disrupted by the response of healthcare services to the coronavirus disease 2019 (COVID-19) pandemic.
- Progression of cancers while treatment is delayed can lead to an impact on patients' long-term survival.

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- This study analyzes the effects of COVID-19 on first treatment performed, and mean time to treatment initiation (TTI) for non-small cell lung cancer (NSCLC).



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Retrospective cohort of individuals registered with NSCLC in the NCDB from 2014 to 2022.

Final Study Cohort
2014-2022
865,808

Pre-Covid
2018 -2019



Covid
2021 -2022

- ANOVA, Chi-square, and t-tests

Time Series
2014 -2022

- Segmented linear regressions

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Study cohort Characteristics

	2014-2022	Before COVID (2018-19)	After COVID (2021-22)	p-value
Health Service				
Facility Type				<0.0001
Community Cancer Program (100 to 500 cases/year)	59274 (6.9)	14069 (7.0)	12426 (6.7)	
Comprehensive Community Cancer Program (greater than 500 cases/years)	340902 (40)	79169 (39)	72521 (39)	
Academic/Research Program (includes NCI-designated comprehensive cancer centers)	290416 (34)	68543 (34)	63216 (34)	
Integrated Network Cancer Program	171220 (20)	39623 (20)	38204 (21)	
Facility Location				<0.0001
New England	55959 (6.5)	12959 (6.4)	11655 (6.3)	
Middle Atlantic	127515 (15)	30190 (15)	26982 (14)	
South Atlantic	195607 (23)	45272 (22)	42509 (23)	
East North Central	164551 (19)	38407 (19)	36443 (20)	
East South Central	73429 (8.5)	17089 (8.5)	15784 (8.5)	
West North Central	71789 (8.3)	16795 (8.3)	15771 (8.5)	
West South Central	59578 (6.9)	14193 (7.1)	12964 (7.0)	
Mountain	28864 (3.4)	6715 (3.3)	6066 (3.3)	
Pacific	84520 (9.8)	19784 (9.8)	18193 (9.8)	
Patient Demographics				
Median income				<0.0001
Lowest quartile	139610 (16)	31935 (16)	28155 (15)	
2nd quartile	173095 (20)	40716 (20)	36443 (19)	
3rd quartile	177153 (20)	41606 (21)	37640 (20)	
Highest quartile	237102 (27)	55662 (28)	50410 (27)	
Missing	138848 (16)	32436 (16)	34519 (18)	
No high school degree				<0.0001
Lowest quartile	151245 (17)	35438 (18)	31629 (17)	
2nd quartile	217656 (25)	52495 (26)	46594 (25)	
3rd quartile	213427 (25)	50244 (25)	45490 (24)	
Highest quartile	146453 (17)	32186 (16)	29343 (16)	
Missing	137027 (16)	31992 (16)	34111 (18)	

	2014-2022	Before COVID (2018-19)	After COVID (2021-22)	p-value
Urban/Rural				<0.0001
Metro	681783 (81)	159648 (81)	146010 (80)	
Urban	138848 (17)	32551 (17)	31144 (17)	
Rural	19503 (2.3)	4376 (2.2)	4565 (2.5)	
Age [Mean(SD)]	68.7 (9.9)	68.9 (9.8)	69.4 (9.6)	<0.0001
Female	430154 (50)	100888 (50)	95363 (51)	<0.0001
Race				<0.0001
White non-Hispanic	705933 (82)	164600 (82)	149882 (81)	
Black non-Hispanic	94145 (11)	22055 (11)	20830 (11)	
Other non-Hispanic	33589 (3.9)	8075 (4.0)	8455 (4.6)	
Hispanic (any race)	27393 (3.2)	6562 (3.3)	6859 (3.7)	
Primary insurance				<0.0001
Not insured	15738 (1.8)	3557 (1.8)	2834 (1.5)	
Private insurance/Managed care	204210 (24)	46245 (23)	39693 (21)	
Government (Medicaid/Medicare/Other government)	636150 (79)	150551 (74)	142999 (76)	
Charlson-Deyo Score				<0.001
0	501894 (58)	116382 (58)	107723 (58)	
1	210880 (24)	47660 (24)	43288 (23)	
2	87940 (10)	20709 (10)	19252 (10)	
3	65094 (7.5)	17604 (8.7)	16904 (9.0)	
Clinical stage				<0.0001
Stage 0	3118 (0.4)	784 (0.4)	686 (0.4)	
Stage 1	304106 (35)	70307 (35)	69120 (37)	
Stage 2	70092 (8.1)	16618 (8.2)	14627 (7.8)	
Stage 3	155676 (18)	35891 (18)	31336 (17)	
Stage 4	310270 (36)	70153 (35)	52076 (33)	
n/A	21944 (2.5)	8432 (4.2)	9240 (4.9)	
Treatment				
First Treatment				<0.0001
Chemotherapy	279314 (32)	64324 (32)	60800 (32)	
Radiation	301609 (35)	71704 (35)	67509 (36)	
Surgery	284885 (33)	66327 (33)	58858 (31)	
Time to treatment initiation [Mean(SD)]	43.0 (43.7)	42.8 (44.6)	51.4 (44.9)	<0.0001
Upstaging (Path Stage greater than Clinical)	41758 (17)	10121 (18)	8684 (17)	0.0001

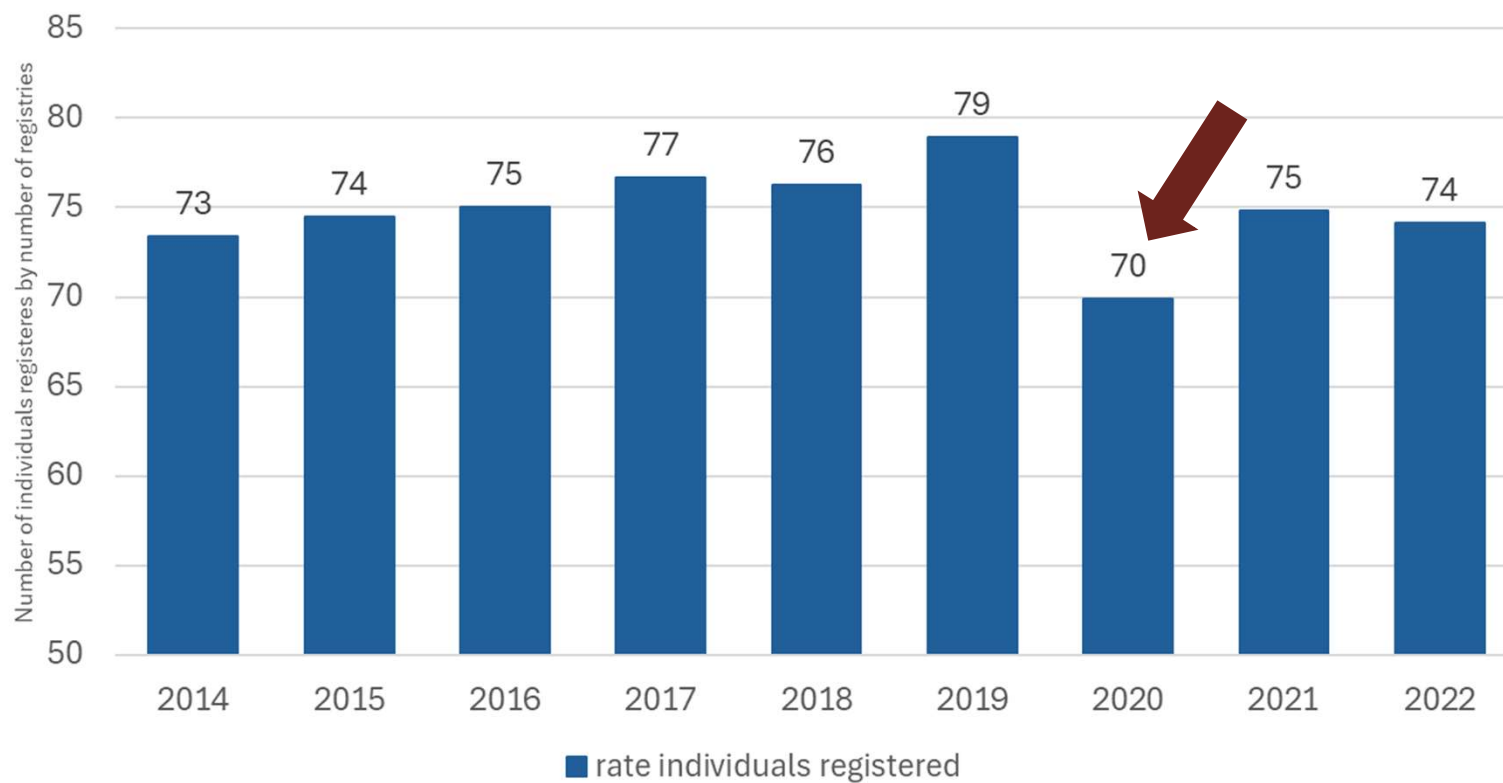
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Time to Treatment Initiation

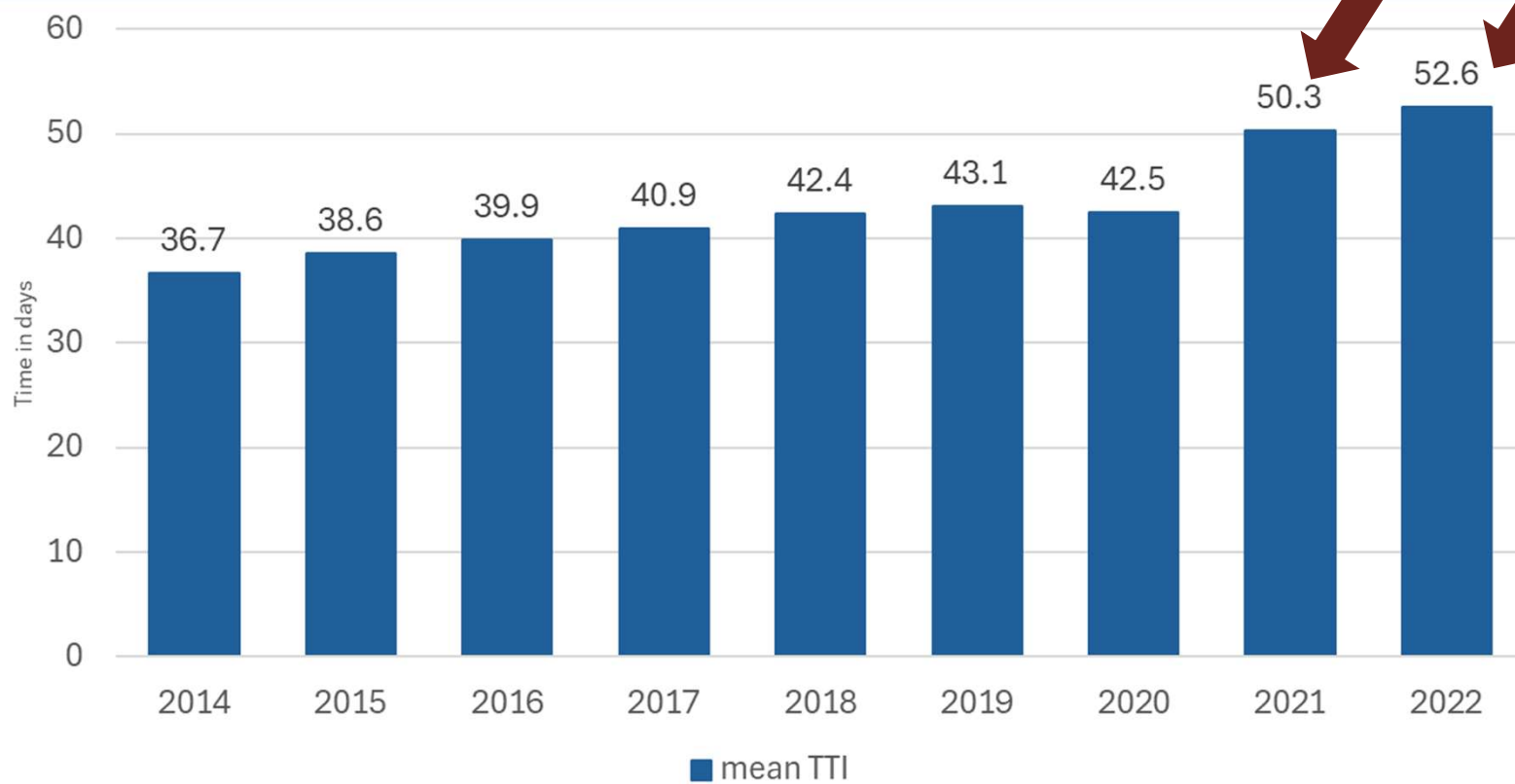
	2018-2019	2021-2022	p-value
Health Service			
Facility Type			0.002
Community Cancer Program (100 to 500 cases/year)	44.8 (43.5)	54.7 (45.0)	
Comprehensive Community Cancer Program (greater than 500 cases/years)	42.9 (43.2)	51.0 (43.3)	
Academic/Research Program (includes NCI-designated comprehensive cancer centers)	43.0 (46.7)	52.1 (47.0)	
Integrated Network Cancer Program	41.8 (43.8)	50.5 (44.2)	
Facility Location			<0.0001
New England	41.6 (44.2)	53.7 (49.0)	
Middle Atlantic	41.8 (45.0)	49.4 (45.7)	
South Atlantic	42.5 (43.7)	50.4 (44.4)	
East North Central	43.2 (43.2)	52.3 (43.6)	
East South Central	39.4 (43.7)	50.3 (42.9)	
West North Central	39.8 (41.9)	50.0 (41.0)	
West South Central	46.2 (47.9)	53.4 (46.4)	
Mountain	44.2 (42.7)	51.9 (44.2)	
Pacific	48.2 (49.2)	55.3 (48.0)	
Patient Demographics			
Median income			0.007
Lowest quartile	45.0 (46.4)	54.2 (47.7)	
2nd quartile	44.0 (44.9)	53.0 (45.1)	
3rd quartile	42.8 (43.9)	51.5 (44.6)	
Highest quartile	40.6 (43.8)	48.4 (42.9)	
No high school degree			0.16
Lowest quartile	45.0 (47.4)	53.4 (48.2)	
2nd quartile	43.9 (46.0)	52.2 (45.1)	
3rd quartile	42.0 (42.8)	51.2 (44.2)	
Highest quartile	39.5 (41.5)	48.1 (41.5)	

	2018-2019	2021-2022	p-value
Urban/Rural			0.08
Metro	42.7 (44.9)	51.2 (45.1)	
Urban	43.6 (43.6)	52.9 (43.9)	
Rural	43.6 (45.8)	52.9 (45.4)	
Female	43.1 (44.6)	51.5 (44.6)	0.07
Race			<0.0001
White non-Hispanic	42.1 (43.3)	51.0 (43.5)	
Black non-Hispanic	47.6 (50.6)	56.3 (51.5)	
Other non-Hispanic	41.9 (46.6)	48.7 (45.6)	
Hispanic, any race	44.4 (48.4)	50.3 (48.1)	
Primary insurance			<0.001
Not insured	38.3 (45.7)	45.0 (44.7)	
Private insurance/Managed care	37.2 (41.2)	44.8 (40.9)	
Government (Medicaid/Medicare/Other government)	44.6 (45.3)	53.4 (45.7)	
Charlson-Deyo Score			<0.0001
0	41.6 (43.9)	49.6 (43.7)	
1	43.0 (44.7)	52.3 (45.3)	
2	45.3 (46.9)	54.8 (45.9)	
3	46.9 (45.2)	57.2 (48.5)	

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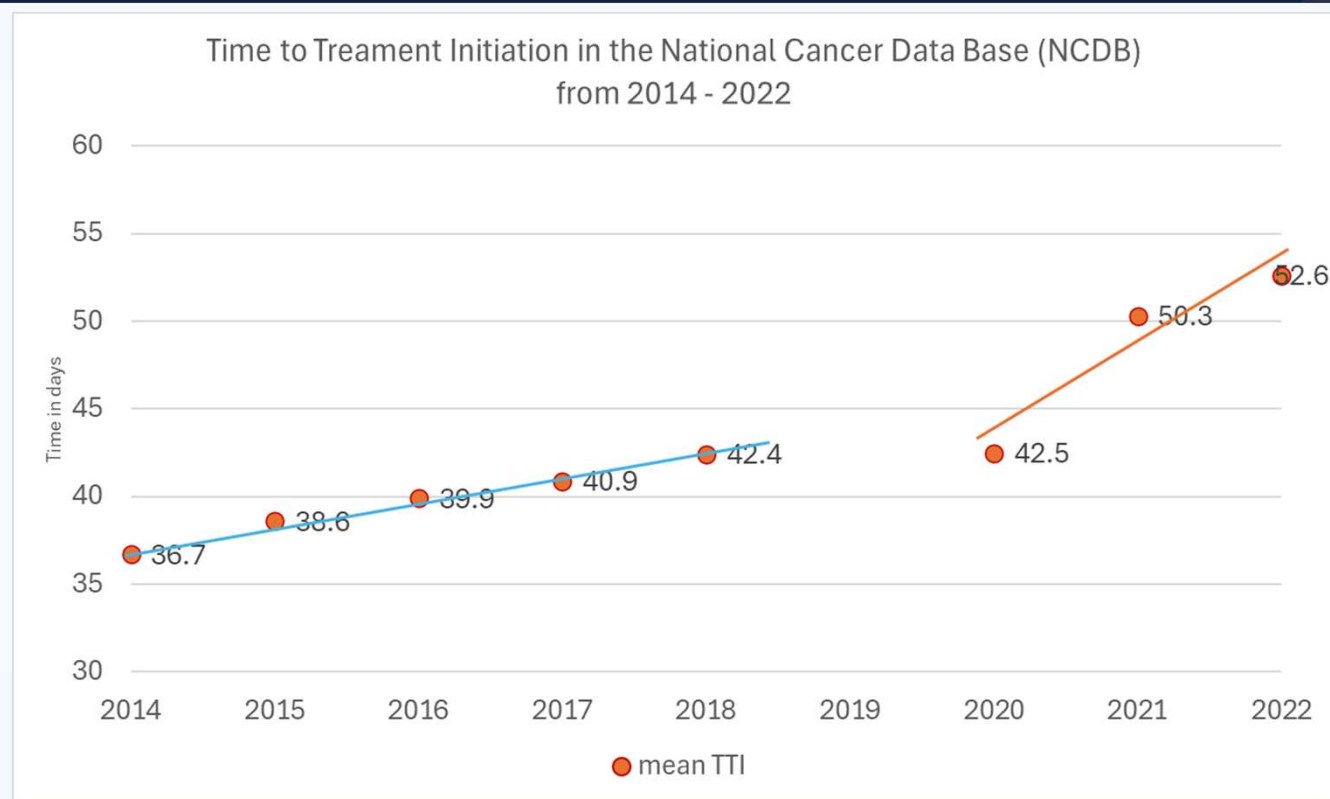


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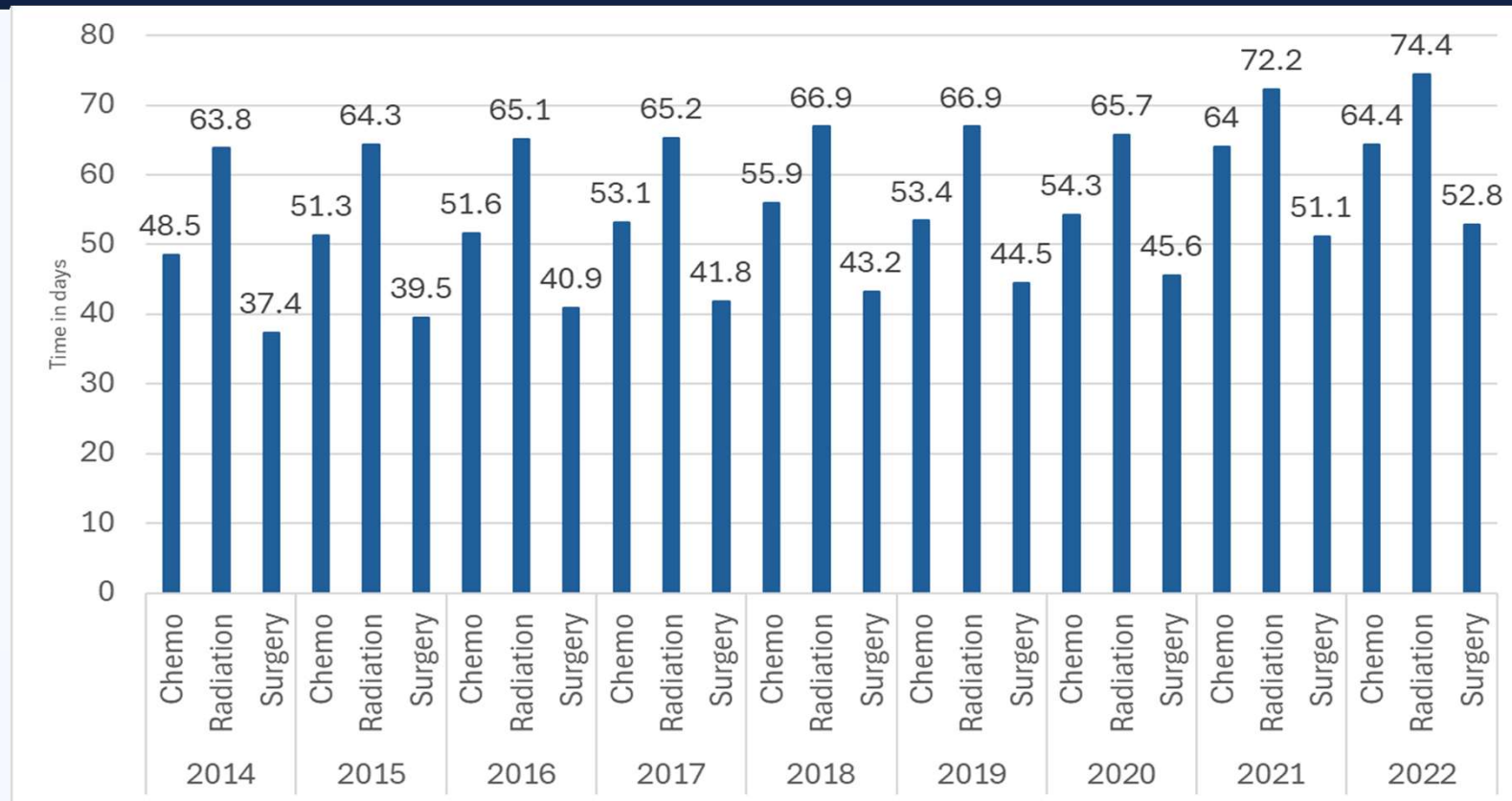
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$p=0.011$ for post level change,
 $p=0.002$ for post trend change,
 $p<0.0001$ for post trend



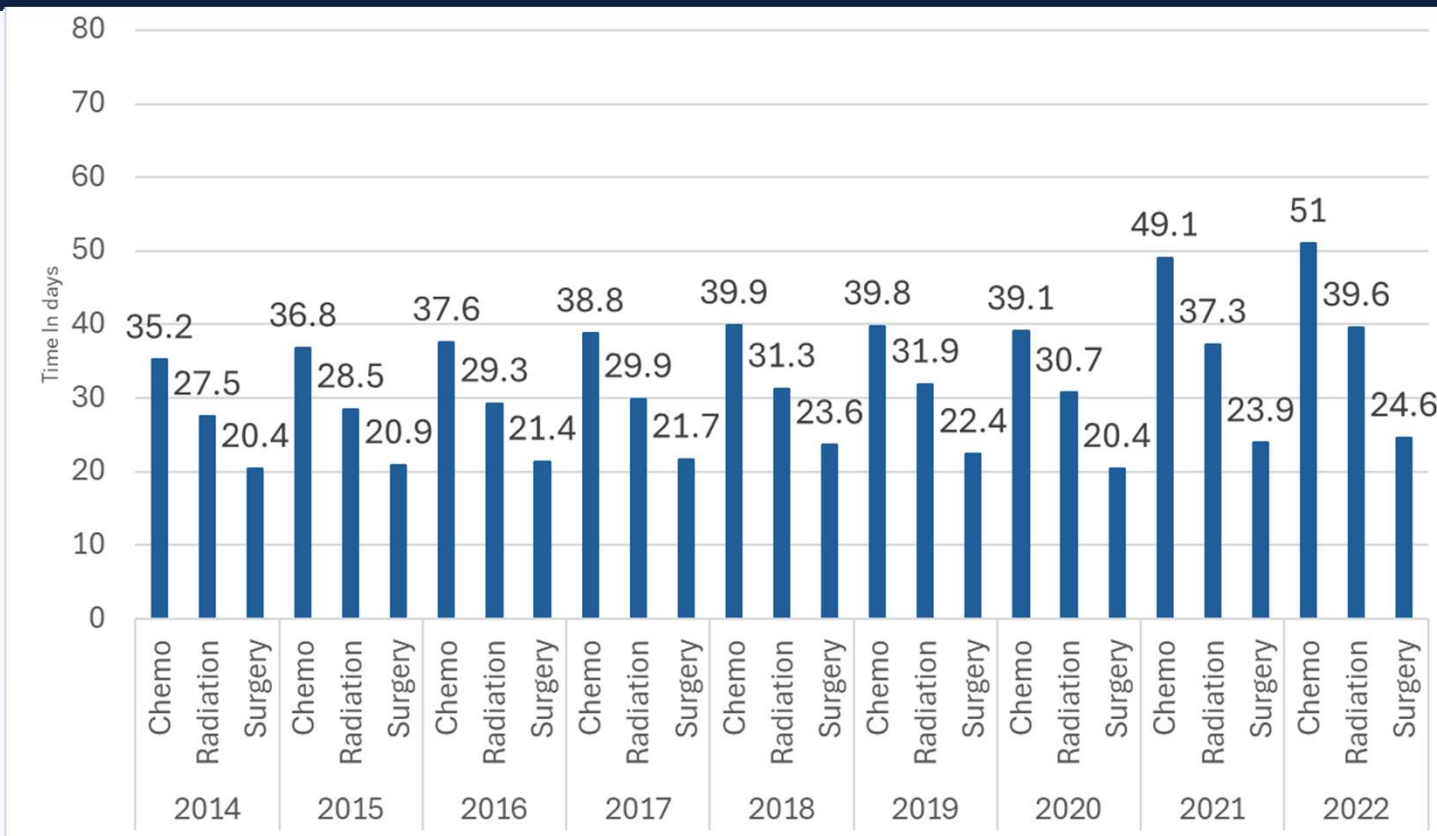
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Time to treatment Initiation Stages 0-2



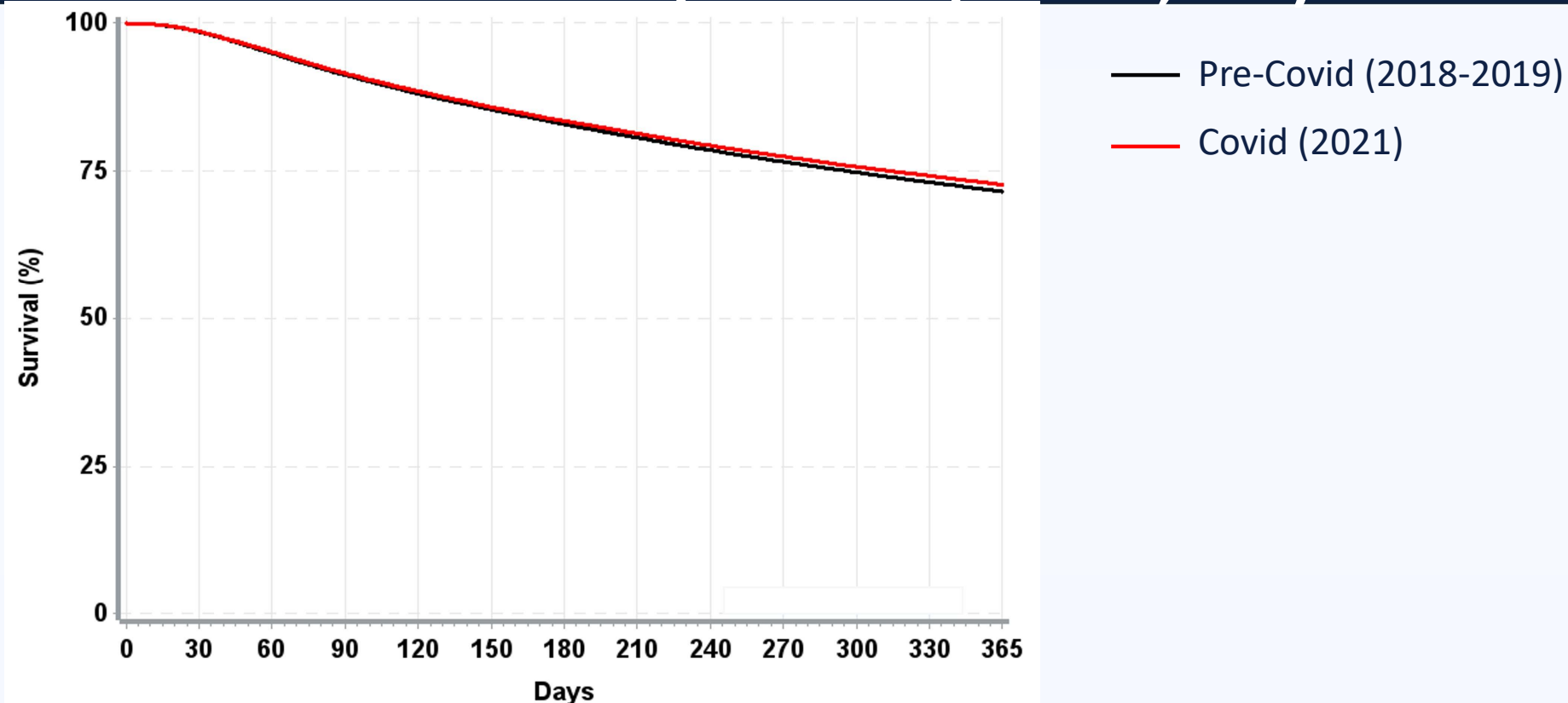
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Time to treatment Initiation – Stages 3 and 4



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Kaplan-Meier curve for One-year Survival 2018-2019 and 2021 patients (n=297,507)



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Conclusions

- Decrease in the number of individuals registered in NCDB after the COVID-19.
- Time to treatment initiation is higher the Covid-19 era
- No differences were observed on the One-year survival

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Thank you

