

Trends in the Incidence of Intrahepatic Cholangiocarcinoma Between 1990 and 2019 Stratified by Race, Ethnicity and Gender among Pennsylvania Residents

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BACKGROUND

Research reports a rising incidence of intrahepatic cholangiocarcinoma (ICC) but recent trends and differences by race/ethnicity and gender have not been explored. Epidemiologic evidence is needed to enable clinicians better understand evolving trends, to inform prevention strategies and screening guidelines. We examined trends in the incidence of ICC among Pennsylvania residents between 1990 and 2019, stratified by age, gender, race, and stage at presentation.

METHODS

Repeated cross-sectional analyses were conducted among patients diagnosed with ICC between 1990-2019 in Pennsylvania using data from the Pennsylvania Department of Health Cancer Registry. Temporal trends with age adjusted incidence rates according to race/ethnicity, gender, age and stage at presentation were assessed using the Enterprise Data Dissemination Informatics Exchange (EDDIE).

RESULTS

4,051 cases of invasive ICC were diagnosed between 1990 and 2019 (Table 1). The age adjusted incidence rate of ICC increased by a factor of 10, from 0.2 per 100,000 population in 1990 to 2.0 per 100,000 population in 2019 (Graph 1).

Graph 1. Total Age Adjusted Incidence Rates per 100,000 of Invasive Intrahepatic Cholangiocarcinoma

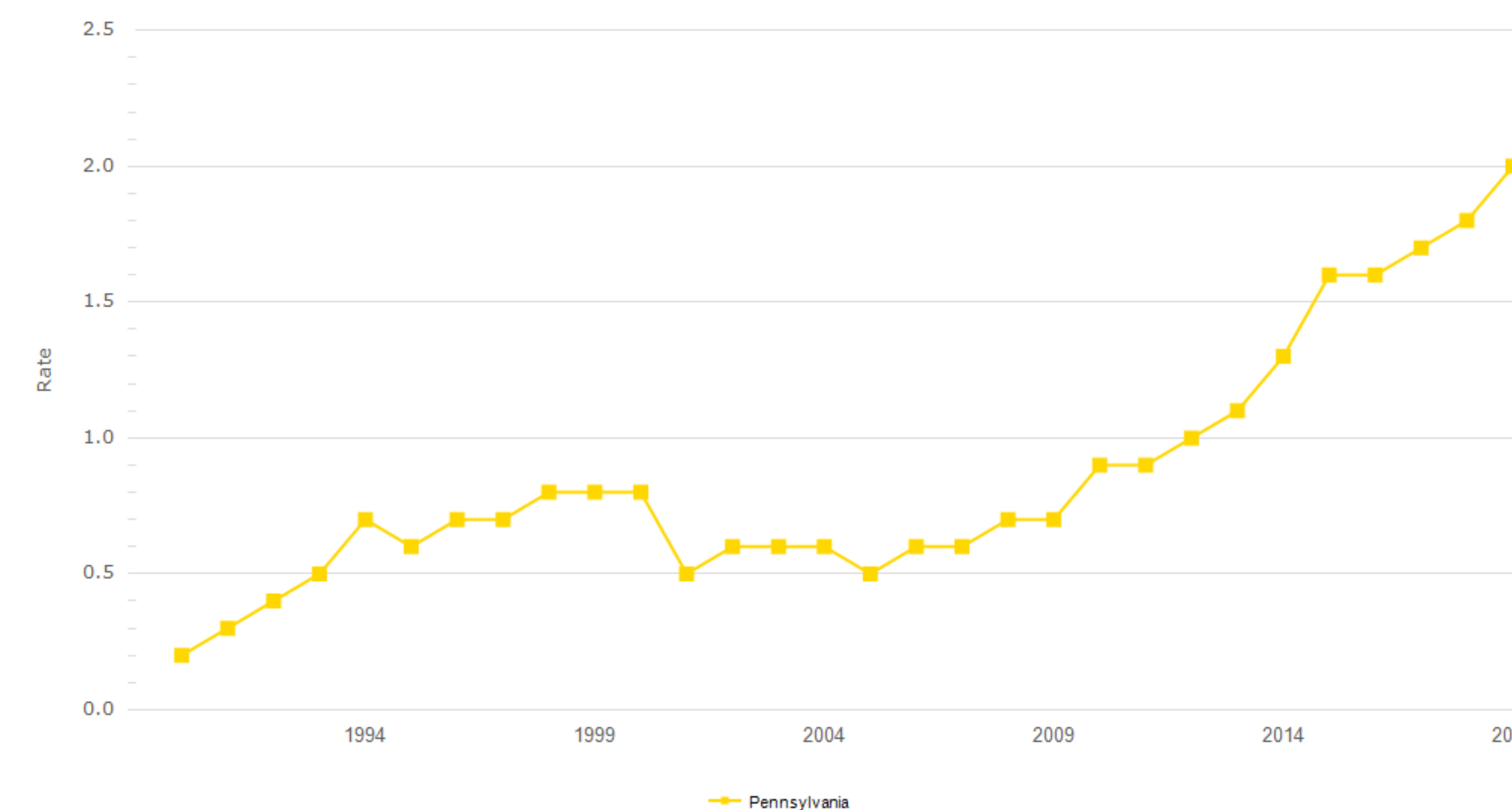


Table 1. Descriptive Statistic and Age-Adjusted Incidence Rates for Intrahepatic Cholangiocarcinoma

	Frequency (%)	Age Adjusted / 100,000
Total	4051 (100)	
Age, years		
<40	74 (2)	0.04
40-54	416 (10)	0.55
55-64	816 (20)	1.93
65-74	1157 (29)	3.65
75-84	1123 (28)	5.65
85+	465 (11)	5.77
By Decade		
1990-1999	786 (19)	0.65
2000-2009	921 (23)	0.74
2010-2019	2344 (58)	1.83
Age group, years		
<40	74 (2)	0.04
40+	3977 (98)	2.24
Gender		
Male	2083 (51)	1.15
Female	1968 (49)	1.03
Race		
Whites	3626 (89)	1.14
Blacks	301 (7)	0.76
AAPI (2000-2019)	63 (2)	0.91
Hispanics (2002-2019)	68 (2)	0.53
Stage		
I	851 (21)	0.23
II	1134 (28)	0.3
III/IV	1255 (31)	0.34
Unknown	811 (20)	0.22

RESULTS CONT

The incidence rate was higher among those aged more than 40 years compared to those less than 40 years old (2.24 vs 0.04 per 100,000 population) and higher among males relative to females (1.15 vs 1.03 per 100,000 population). Incidence rate was also highest amongst Whites (1.14 per 100,000 population), compared to Asian/Pacific Islander (0.91 per 100,000 population), Blacks (0.76 per 100,000 population) and Hispanics (0.53 per 100,000 population). 31% of patients presented with stage III/IV disease while 28% presented with stage II disease. The rates per decade increased slightly from the 1990's to the 2000's (0.65 vs 0.74 per 100,000 population) before increasing drastically in the 2010's to 1.83 per 100,000 population.

CONCLUSION

These results demonstrate significant increase in incidence rates of ICC in recent years. Five-year survival rates of ICC regardless of stage have been reported in other studies at 9%. Given this high mortality and rising incidence rates, clinicians may need to start considering possible screening strategies. Furthermore, other prevention and treatment approaches need to be investigated.

QUALITY IMPROVEMENT INITIATIVE TO IMPROVE COLORECTAL CANCER SCREENING RATES IN A PRIMARY HEALTHCARE CLINIC USING INPATIENT FECAL IMMUNOCHEMICAL TESTING (FIT): A 6 MONTH ANALYSIS

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BACKGROUND

The National Colorectal Cancer Roundtable has set a goal of achieving screening rates of 80% across the country. Unfortunately, as of 2020 only 69.7% of eligible US adults are up to date with colorectal cancer (CRC) screening. While colonoscopy remains the gold standard, FIT tests are a validated alternative. Despite this option, screening rates remain as low as 50% in our North Philadelphia clinic population. Multiple factors contribute to this including comorbidities, healthcare literacy, social and economic barriers. Given the multiple barriers to screening, we designed a program to allow our established clinic patients to complete a FIT test when admitted to the hospital. FIT tests are not done in the hospital currently for screening, but this offers an opportunity for hospital systems to increase screening in the community. The goal of this initiative is to increase our clinic populations CRC screening rate by 3% by utilizing FIT testing while they are hospitalized by May 2022.

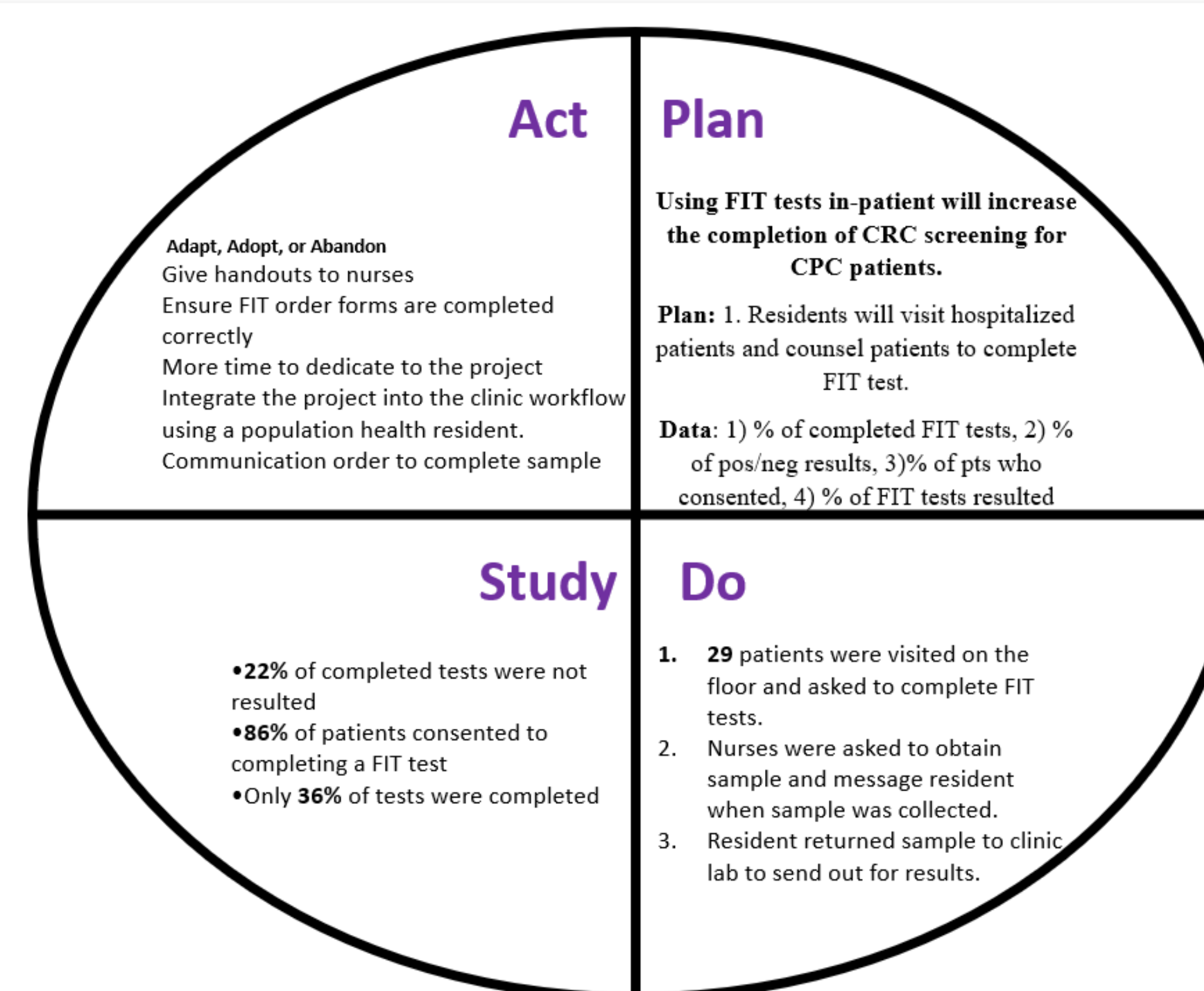
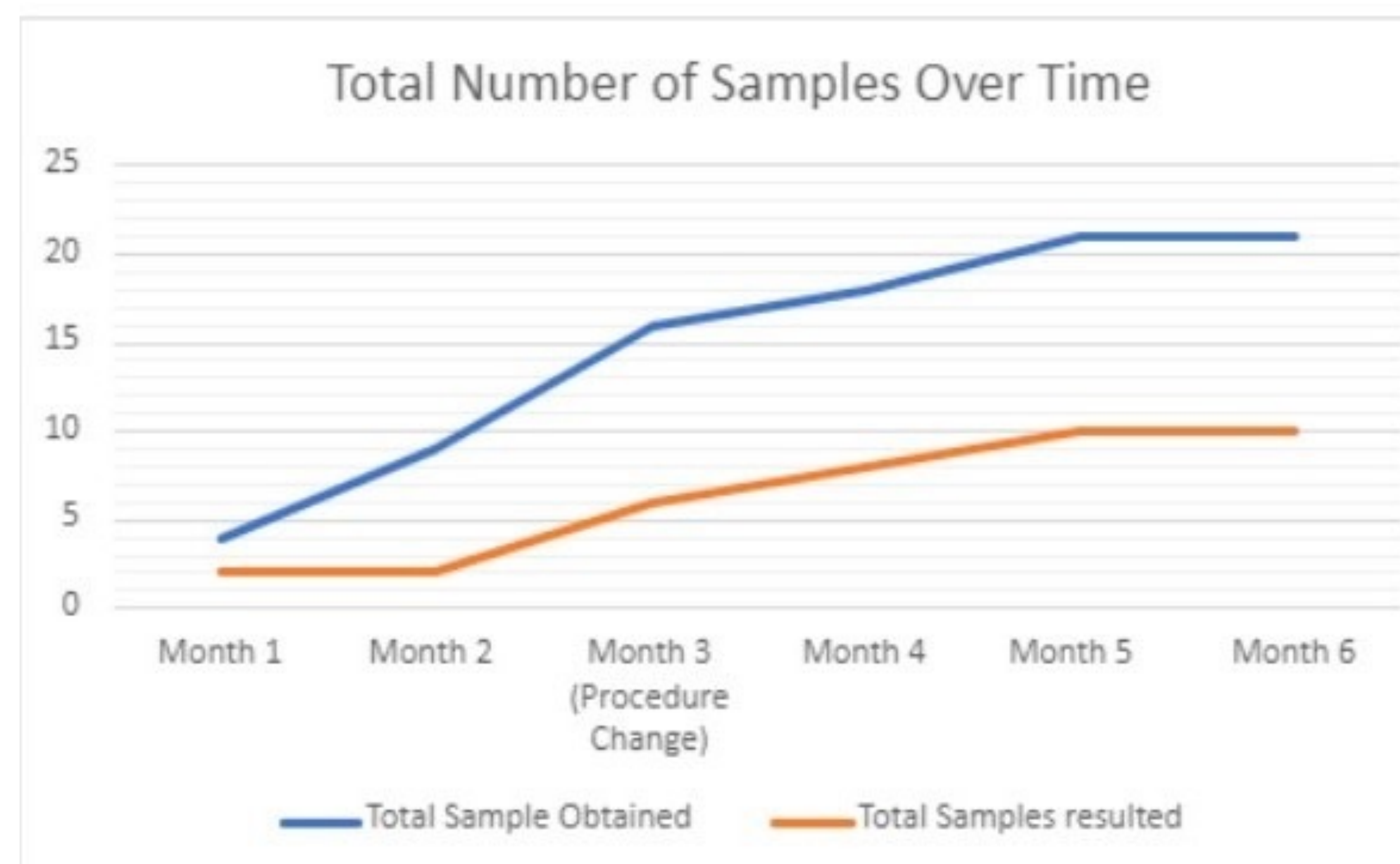
METHODS

This QI initiative included the creation of a CRC screening report for our currently hospitalized clinic patients, the ordering of FIT tests for patients, and collaboration with nursing staff to collect the stool samples for the FIT tests. First, an electronic medical record daily report was created to generate a list of patients within our clinic who were admitted and due for CRC screening. If eligible these patients were given a FIT test to complete while inpatient.

Table 1 Total Number of Sample Obtained

	Month 1-2	Month 2-6	Total
Days Dedicated	13	30	43
Total Number of Patients	29 (2.2 patients/day)	58 (1.9 patients/day)	87 (2.0 patients/day)
Patients Consented	25 (86%)	42 (72%)	67 (77%)
Sample Obtained	9 (36%)	12 (29%)	21 (31%)
Total Resulted	2 (22%)	8 (67%)	10 (48%)
No Result	7	4	11
Positive Result	1	3	4
Negative Result	1	5	9

Graph 1 Total Number of Samples Over Time



METHODS CONT

Exclusion criteria included patients admitted to critical care units, active GI bleeds, altered mentation, planned discharge in <24 hours or planned inpatient colonoscopy. This occurred over a 6-month period from May-October 2021. The Institute for Healthcare Improvement Plan-Do-Study-Act (PDSA) model of quality improvement was utilized to assess if the initiative was implemented as planned and if the predicted outcomes were met.

RESULTS

In the first 2 months, 29 patients were offered a FIT test; 25 of these patients consented for testing and 9 patients were able to complete the test. After 2 months, the protocol was re-evaluated in following with the PDSA model, and the team was also expanded to include a designated nurse and resident. Over the first 6 months, a total of 67 patients consented for testing and 21 patients (31%) were able to complete the FIT test.

CONCLUSION

We have presented what we believe as the first program designed to allow patients that are admitted to the hospital to complete a FIT test for CRC screening. In following with a PDSA model, the program is being continually re-evaluated to look for ways to improve. While data is still being collected, preliminary data suggest that this could become a feasible way to screen patients for CRC. This program has the potential to improve CRC screening rates across the country, particularly for at-risk populations.