Quality improvement process to increase compliance with influenza vaccination in adults with cystic fibrosis

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Background: Cystic fibrosis (CF) patients are required to be seen in the CF clinic every 3 months, resulting in frequent lengthy visits to the clinic for testing and consultations with providers. During influenza season, people with CF are told to go down to another floor or an outside establishment to be vaccinated. In most cases, the person with CF does not want to spend any more time at the clinic and does not want any more potential exposure. This results in them having to remember to get the vaccine elsewhere and make the time to do it. To get all people with CF vaccinated appropriately and increase patient satisfaction, the vaccination process should be improved.

Methods: The Mayo Clinic cystic fibrosis team worked to improve influenza vaccination compliance by developing a process for vaccination administration in the cystic fibrosis clinic (CFC). Between September 2021 and March 2022, the nurse coordinator administered the influenza vaccine to people with CF who consented. When the patient declined the vaccine or had received it elsewhere, it was appropriately documented and recorded on a spreadsheet. Patients who were vaccinated (outside of Mayo and at Mayo) and those who had not (declined vaccine or unable to get information about vaccine status) were tracked.

Results: During the 2020 influenza season, 64% of patients were thought to have been vaccinated, all of which were received outside the clinic. During the 2021 season, 92% of patients were vaccinated at Mayo Clinic or outside with accurate documentation and validation (Figure 1). In 2020, reporting and documenting of influenza vaccination was not consistent or standardized. The team relied on records that flowed over in the system. In 2021, the option to receive the vaccination in the clinic provided the clinic with more accurate information about the vaccine, increased vaccine compliance, and increased patient satisfaction.

Conclusions: The influenza vaccination process change has helped the team establish a more accurate and efficient way to document vaccination and a process to increase vaccination compliance.

Real-time use of a cystic fibrosis transmembrane conductance regulator modulator tracking report can identify problems with adherence

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Background: Cystic fibrosis (CF) transmembrane conductance regulator modulators have revolutionized CF care, but given the extreme cost of modulators, measures to track adherence and outcomes are needed. Published adherence rates range from 60% to 90%. The Kaiser Permanente Northwest (KPNW) adult and pediatric CF centers developed a modulator tracking report to track adherence (Figure 1). Providers receive monthly feedback so that we can intervene quickly if problems are identified.

Methods: For all patients on modulator therapies, we track dispense date, date medication on hand will last until, coverage gap, medication possession ratio (MPR), proportion of days covered (PDC), and additional supply of medication on hand. Modulators are always dispensed at our center as a 28-day supply. MPR was calculated as days dispensed divided by number of days since last refill. If a prescription was filled early, the MPR would be greater than 100%, and if it was filled late, it would be less than 100%. PDC was calculated as sum of days' supply in a period covered divided by number of days in the same period. The maximum PDC is 100%. Additional supply of medication on hand was calculated based on dispense date and days' supply. Patients with poor adherence or excessive supply of medication on hand were flagged. The report is distributed to the CF team monthly with a summary highlighting patients with potential concerns. A provider reaches out to these patients to discuss their medication use.

Results: KPNW adult and pediatric CF centers care for 84 patients (56 adults, 25 children). As of March 2022, 56 (66%) were taking modulator therapy; 95% were taking elexacaftor/tezacaftor/vacafactor. Average adherence of the entire population has been very good. In the 2021 measurement year, median MPR was 101.4% (interquartile range (IQR) 93.1–108.9%), and median PDC was 98.9% (IQR 93.2–100%), although there were outliers, with a minimum MPR of 48.4% and maximum of 122%. Some patients accumulated an excess of medication. Examples include two patients who had accumulated 79 and 116 excess days' supply, respectively, over approximately 2 years. This represented more than $160,000 in excess medication dispensed to these patients alone.

Conclusions: Our KPNW modulator tracking report provides monthly feedback directly to providers and has helped identify poor adherence and stockpiling. We have found this report to be timelier and provide more actionable data than vendor-supplied reports, which has led directly to timely discussions with patients to identify and correct barriers to adherence and address reasons for stockpiling. We identified patients who reported taking their medication, but we were able to see that refills were delayed. One patient repeatedly reported taking medication regularly despite refill history suggesting otherwise. A sweat test was very high. After this test, the patient admitted to not taking the medication. Another patient had an extreme excess supply. A conversation revealed that the patient was worried about potential supply chain issues, so they were ordering a few days early each month. One limitation of our tracking system is that it relies on providers to review each patient's monthly report. In the future, we hope to have a pharmacy team monitor the report regularly, which will allow us to identify potential concerns earlier.

Rebuilding a culture of research

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Background: Over the last decade, our multidisciplinary team has grown from 15 caregivers and researchers to 34, with periods of significant turnover. Our patient population has more than doubled, from 236 people with cystic fibrosis (PwCF) in 2011 to more than 500 in 2021. The reach of