

Forty percent increase! No increase!

Over the past few weeks, various entities have thrown out estimates of the cost implications of treating COVID-19. As you might expect the range has been quite large. One insurance-based financial services firm is estimating that the cost of testing and treatment for the disease in 2020 for large self-funded plans will be offset by the reduction in demand for health care services as members avoid interactions due to social distancing. Another analysis by a large state-based ACA marketplace estimated a 40% increase would be needed for commercial plans (other than Medicare, Medicaid, and other public programs) covered by insurers and self-funded plans for 2021. The analysis, admittedly, did not include any consideration for reduced demand for non-COVID-19 services related to a desire to avoid public places during the pandemic. Other published estimates have been in-between these two extremes.

While we would expect a wide range of estimates given the need to consider numerous data elements and assumptions, some with little or no prior experience on which to rely, the best actuarial models will consider all contingent events resulting from the pandemic and conduct detailed analyses behind each assumption to allow for a reasonable range to narrow the results as much as possible. This article addresses many of the issues in estimating the cost implications of COVID-19 for health plans based on more than 35 years of experience the author has in projecting healthcare costs; extensive reviews of hundreds of studies, articles, websites, and news reports; and numerous consultations with other actuaries and healthcare professionals.

The article breaks down the discussion between COVID-19 testing and treatment, human behavioral changes that effect demand for health care services, other Issues to consider, and long-term implications of the disease on health care costs. This topic, however, would not be complete without first addressing reporting and data quality issues.

Reporting and Data Quality

One of the major issues in making projections of the cost implications of COVID-19 is the reliability of the information being reported. Most of the critical statistics needed to produce estimates, including the number of tests for the virus, cases testing positive, hospitalization and intensive care unit (ICU) rates, the existence of other health conditions that complicate treatment (comorbid conditions), and the number of deaths, are affected by data quality issues.

Governments have been questioned and criticized for lack of reporting or potential under-reporting of results in an effort to appear to have better managed the outbreak. However, even in jurisdictions where few questions are raised about the transparency of the reported information, data issue still exist. Testing is limited due to availability and individuals with the virus have likely gone untested. Many individuals with the virus are either asymptomatic or have mild symptoms and go untested, either due to lack of availability or a desire of the individual who only suspects they are infected and does not want to venture out in public and increase the odds of becoming infected (if not already) or infecting others. Additionally, as is typical with such tests, results can show false positives and false negatives.

Reporting on comorbid conditions of those hospitalized is also suspect, mainly due to the resource constraints of healthcare professionals serving the infected community and their desire, and rightfully so, to focus on treatment versus the administrative details. Therefore, in addition to a potential lack of information on other conditions that might contribute to greater hospitalizations and/or ICU usage, we may also be experiencing a

greater than normal lag in the reporting time from date the service was incurred to the date at which the the information is available in the claim data for reporting purposes. It is also difficult for healthcare professionals dealing with COVID-19 patients with other comorbid conditions to distinguish the primary reason for hospitalization or even the cause of death. It appears that many, if not all deaths, for patients with the virus are being attributable to COVID-19.

Finally, COVID-19 specific ICD-10 and CPT-4 codes used by health providers to identify different resource commitments for billing and claim processing became available in early April, 2020. Capturing COVID-19 specific resources through health care claims analyses will require some speculation for claims filed prior to the release of these new codes. The issuance of these new claim codes will also likely add more time to the claim submission process by health care staff as well as to the claim adjudication process by insurance administrators as they become acquainted with the appropriate applications of these new designations. Additionally, work-from-home policies and the need to maintain a safe distance from co-workers could increase the time for health plan administrators and insurers to process claims.

It's not to say that the information available is unusable for actuarial projections. However, these issues need to be addressed and appropriate adjustments applied to account for the potential deficiencies in the data.

COVID-19 Testing and Treatment

Major assumptions required in the development of an actuarial model to assess the cost of testing and treatment include the incident rate of testing and infections along with expected hospitalizations (ICU and non-ICU) in a given population. Care must be taken to not only adapt existing data sources for flaws in reporting (as previously discussed) but for necessary adjustments from globally-, nationally-, or regionally-derived statistics to assumptions more specific to the underlying population being modeled. Global or national statistics may not be appropriate for a health plan that serves members located in a current virus outbreak "hot spot". Additionally, the relative age and the health-risk profile of a population have been shown to influence rates of infection and hospitalizations. Older members tend to have weaker immune systems and members with comorbid conditions like diabetes, lung disease, heart disease, hypertension, risk for stroke, and cancer have shown a greater risk for hospitalization, the healthcare resources required if hospitalized, and death. Clearly, age and health status adjustments are critical for a given population. Industries where employees have greater difficulty maintaining a safe distance from other workers or the public (or material that has come in contact with the public) may require an additional risk adjustment to these statistics to model result adequately.

These assumptions also need to align with the time period over which the projections apply, which may require the consideration of a second wave of the outbreak later this year and next.

Cost projections related to testing need to reflect that not all members will be tested. Also, not all who are tested will incur a cost that will be paid by the health plan since tests offered by public health systems (federal, state, and local governments) are free. An actuarial model also needs to recognize that a portion of the population tested positive will be asymptomatic or have mild conditions and not seek treatment (possibly influenced by the desire to not infect others in the course of seeking treatment).

Care needs to be taken in developing the costs for hospital admissions for COVID-19, including care for patients requiring more critical resources like ventilation. Costs derived from non-COVID-19 treatment like pneumonia may not reflect the resource requirements to treat COVID-19 patients. Prudent actuarial models will take these

factors into account. Costs for primary care office visits, outpatient laboratory services, and emergency room visits to test and treat conditions can be derived from the actual experience of the population considered and adjusted to the projection period. General population statistics are available through national benchmark databases if not available from the health plan or the experience lacks credibility.

Human Behavioral Changes Effecting the Demand for Health Care Services

Human behavior influenced by the spread of the virus and physical (social) distancing policies are likely to affect the demand on health care services unrelated to the testing and treatment of COVID-19. In an effort to either avoid contracting the virus from others or spreading it if infected (or assumed infected), individuals are putting off certain non-urgent and elective procedures. It is anticipated, as an example, that visits to the primary care physician, outpatient laboratory, annual or periodic screenings, and elective surgeries will be cancelled or postponed until a later date. Inherent in the decision to postpone a procedure is a potential desire by the patient to not reschedule (“I’m fine, I don’t really need my physical this year”) or a lack of available dates by the provider to reschedule a procedure within the projection period. The effect of this on human behavior will be determined by the length of the pandemic and the associated physical distancing policies.

Visits to the emergency room are likely to experience a decrease as stay-at-home policies result in fewer automobile accidents on our street and highways. Additionally, non-urgent visits that might have previously been handled in the emergency room may now be handled more appropriately via telemedicine or less populated urgent care centers due to concerns about the spread of the virus in the hospital setting where COVID-19 patients are being treated.

Other services, however, may experience an increase in demand, either during the height of the pandemic or immediately following. The use of telemedicine to avoid waiting rooms potentially occupied by infected individuals or the wider application by physicians in response to the pandemic is increasing utilization of interactive telephonic and video technology for traditional primary care visits. This service, especially if a plan benefit, may take up some of the reduction expected in primary care office visits.

There may also be an increase in demand for mental health and substance abuse services, either during the outbreak of the virus or afterward. Stress due to stay-at-home policies, the inability to interact with family members and friends, concerns about loss of wages or a job, and concerns about contracting the virus are creating an environment where greater use of mental health professionals seem likely. It has been reported that alcohol sales for the week ending March 31, 2020 were up 55% over the same time last year. FBI background checks for gun sales reached a record 3.7 million in the month of March, 2020. Instances of abuse are being reported against family members not typically in the home environment during the day. All of these signs point to a potential increase in demand for mental health services.

Robust actuarial models will allow for potential change in demand and offer flexibility on how that demand would change based on projections for how long stay-at-home policies would be in place as well as the focus on the effect of the pandemic.

The cost per visit associated with many of these services can be derived from the actual experience of the population considered and adjusted to the projection period. General population statistics are available through national benchmark databases if not available from the health plan or the experience lacks credibility.

Other Issues to Consider

Other issues may not require a specific adjustment due to changes in demand during the initial stages of the pandemic that subside subsequently such that the results are normalized during the projection period. As an example, it has been reported that scripts for prescription drugs rose in March but there was much speculation that this was an attempt to stockpile on maintenance drugs so the effect over a long period may reflect no change in drug costs. However, for health plans that may need to assess the cost implications for a period ending March or April this may be a factor that would influence the actuarial modeling.

There has also been speculation that the stay-at-home policies may lead to a spike in births in December, 2020 or January, 2021. However, caution may win the day as couples may be concerned about the need to manage pre-natal care visits during a pandemic. This potential issue could actually limit maternity cases into 2020.

Plan design changes will need to be considered in estimating the cost implications of COVID-19. Plan sponsors may decide to waive member cost-sharing (deductibles, coinsurance, co-pays, etc.) for the treatment of COVID-19 in addition to the federal mandate to waive member cost-sharing for testing. Changes unrelated to COVID-19 may have also been planned. In any event, analyses of the cost implications should assess the effect of the change to both member costs and plan costs.

Other issues that will require specific adjustments include changes in employment. Industries have been affected differently, some expanding employment to deal with greater demand for some commodities and services while other industries have suffered significantly. Changes in the employed and covered population should be incorporated in any model to assess the full implications of COVID-19. Keep in mind, however, that while those that elect COBRA continuation coverage were likely to be greater utilizers of health care resources than those not on COBRA (prior to COVID-19), the fear of potentially contracting COVID-19 may not only increase the number of participants on COBRA but also change the health care utilization patterns typically experienced.

Long-term Healthcare Concerns

Several articles have been published suggesting long-term physical effects from the virus could be possible. Damage to the heart, lungs, kidneys, and brain have been speculated but little data exists today to understand if these issues are significant and to what extent their effect will have on future claims costs. Attention should be paid to these potential issues over the long-term.

Summary

Robust, flexible, and credible actuarial models are needed for health plans and plan sponsors during and following this pandemic to adequately plan for 2020 and 2021. There are a reasonable range of assumptions that can be applied in these models to allow for contingency planning but great care needs to be taken in the development of any analysis to allow for appropriate modeling of all the moving parts related to COVID-19. Models also need to be adaptable to updated information, new sources of data that offer better reporting capabilities, and new findings from the medical community that may result as we progress through this pandemic.