Respiratory Illness and Site of Care – Implications for COVID-19 Like Illness

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Is COVID-19 like other respiratory illness?

COVID-19 is primarily a respiratory illness[1,2]. While there are additional symptoms related to gastrointestinal disturbance, coagulopathy, dermatologic manifestations, and occasional neurologic components, most cases of COVID-19 are upper and lower respiratory conditions. Historically, upper and lower respiratory illness has been cared for at home or in the ambulatory primary care setting[3]. At the height of the COVID-19 pandemic in the United States, less than 5% of Emergency Room visits were for COVID-19 Like Illness (CLI)[4]. The cumulative hospitalization rate for CLI was 29.2 per 100,000, accounting for about 100,000 hospitalizations. Given the wide variation in clinical severity, from mild upper respiratory (URI) symptoms with fever and cough to moderate lower respiratory (LRI) symptoms of cough and shortness of breath, to severe respiratory distress, it is reasonable to predict that even in the midst of a COVID-19 surge, a vast majority of cases will be identified by primary care clinicians in ambulatory settings through virtual video or telephone encounters or in-person visits.

Where do patients with respiratory illness receive care?

The Medical Expenditure Panel Survey (MEPS) is a representative sample of patients from the United States that regularly assesses their use of medical care services[5]. We analyzed 2017 MEPS data to determine the number and proportion of patients who were seen in primary care ambulatory settings or hospitalized for upper or lower respiratory illness or pneumonia. For this analysis we used a standard definition of primary care that includes family medicine, general internal medicine, pediatrics, and geriatrics. Because family medicine is often the major or only primary care physician in a community, we analyzed the subset of cases seen in family medicine ambulatory clinics. We also calculated the number of visits to primary care and family medicine physicians.

<u>Primary Care (PC)</u>

In a given year, 19.5 million patients are seen by primary care for a URI and 64 million primary care visits include a diagnosis of URI, 10.7 million patients for LRI/bronchitis and 82.5 million PC visits include a diagnosis of LRI/bronchitis and 9 million patients for pneumonia and 38 million PC visits include a diagnosis of pneumonia. See Figure 1 and Table 1.

<u>Family Medicine (FM)</u>

12.8 million patients see a Family Medicine Physician for URI (37.8 million FM visits), 8.4 million patients for LRI/bronchitis (62.4 million FM visits) and 6.4 million patients for pneumonia (26.2 million FM visits).

<u>Hospital</u>

Each year, 263,000 patients are hospitalized for URI, 372,000 are hospitalized for LRI, and 890,000 are hospitalized for pneumonia. 416,000 hospitalizations include the diagnosis of URI, 888,000 include the diagnosis of LRI, and 1.5 million hospitalizations include the diagnosis of pneumonia. See Table 2.

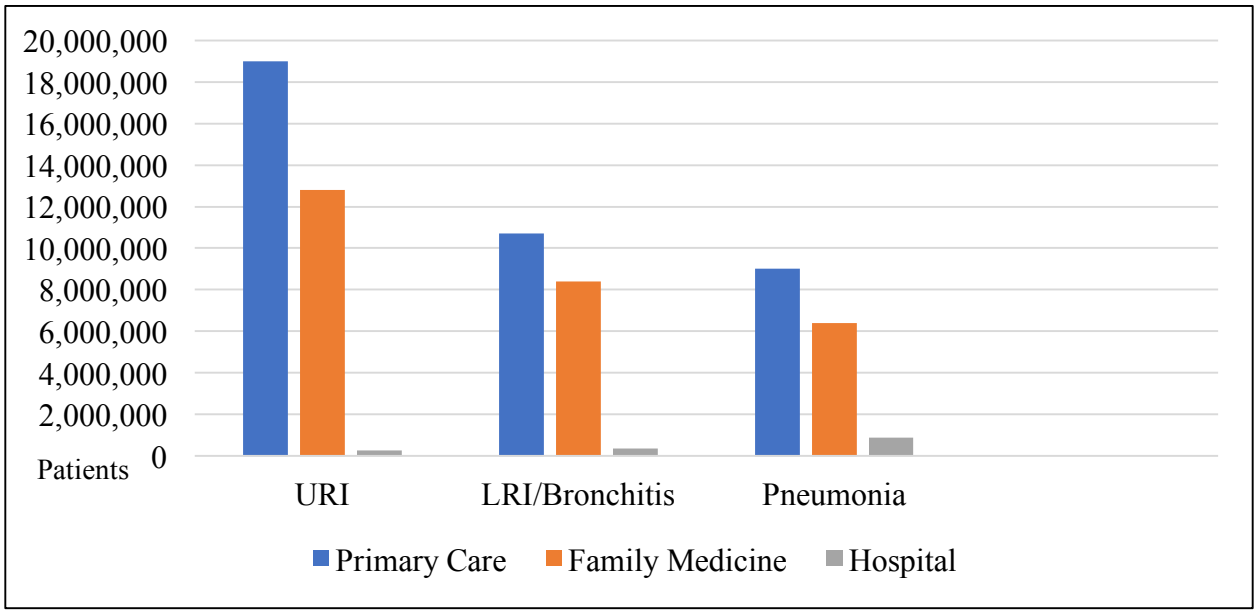
What are the primary care implications for COVID-19?

The vast majority of patients with respiratory illness who seek care do so in the primary care setting. Even patients with pneumonia are most frequently seen in primary care clinics. These data do not include patients who experience symptoms of a URI but do not seek medical care. It is uncommon for patients with severe respiratory illness to not seek any medical care, so these data likely represent most of the moderate and severe respiratory illness. Given that a primary etiology for respiratory illness in early 2020 was SARS CoV-2 (COVID-19) primary care practices likely were the site of first contact for many patients with COVID-19 illness.

Physical distancing coupled with patient fear and uncertainty may have changed the way patients contacted their primary care provider. While facing an increase in patient need, the way care is delivered has shifted with a significant amount provided by telehealth, and a steady need for in-person care as well. Etz and colleagues found that primary care practices used a mixture of video, telephone, and in-person visits, but 84% of clinicians reported they have patients who can't use telehealth options for care[6]. Unfortunately, there has been inadequate support for both in-person visits and telehealth visits. Primary care clinicians reported serious shortages of personal protective equipment (PPE) and testing capacity.[7] Even after the Centers for Medicare and Medicaid Services relaxed the rules for telehealth reimbursement, inadequate reimbursement for telehealth visits coupled with decreased in-person visits put primary care practices at risk of layoffs and closure[8,9].

Primary Care plays a prominent role in care for patients suffering respiratory illness. In the COVID-19 pandemic, primary care may continue to play an important frontline role in diagnosing COVID-19 infection, providing care and treatment, and offering crucial triage for patients with moderate to severe disease. Preliminary reports from the Centers for Medicare and Medicaid Services indicate that, even among Medicare beneficiaries, two-thirds of confirmed COVID-19 cases did not require hospitalization and received their care in ambulatory settings[10]. Primary care providers have offered a mix of in-person and virtual care to patients with all types of presenting complaints, including URI, a portion of which is likely to be COVID-19 Like Illness. Primary care will play an important role in the recovery process by identifying patients at risk for COVID-19 and those who may have COVID-19 immunity, and by continuing to provide care to patients with the usual acute, chronic, and preventive care needs. Policies related to primary care payment, federal relief efforts, PPE access, testing and follow-up capacity, and telehealth technical support are essential so primary care can provide first contact and continuity for their patients and communities throughout the COVID-19 pandemic response and recovery.

Caption: Figure 1. Respiratory Illness and Site of Care – Patients - MEPS 2017



Source: Author's Analyses of Medical Expenditure Panel Survey (2017)

Caption: Table 1. Ambulatory Primary Care and Family Medicine visits for Respiratory Illness – MEPS 2017

Table 1: Ambulatory Primary Care and Family Medicine Visits for Respiratory Illness							
Patient level – number of non-duplicated patients reporting this diagnosis						**Visit level – number of visits that included this diagnosis**	
Diagnosis	Primary Care		Family Medicine		US population	Primary Care	Family Medicine
	# Patients	Percent	# Patients	Percent		# Visits	# Visits
URI	19,539,206	6%	12,837,089	4%	323,141,733	64,101,442	37,873,394
LRI	10,728,045	3%	8,437,528	3%	323,141,733	82,592,703	62,423,705
Pneumonia	9,060,753	3%	6,479,655	2%	323,141,733	38,603,646	26,294,553
Source: Author's Analyses of **Medical Expenditure Panel Survey (2017)**							

Caption: Table 2. Hospitalizations for URI/LRI/pneumonia – MEPS 2017

Table 2: Hospitalizations for URI/LRI/Pneumonia				
Patient Level – number of non-duplicated patients reporting this diagnosis				**Visit level – number of visits that included this diagnosis**
Diagnosis	# Hospitalized	Percent	US population	# Hospitalizations
URI	263,533	0.08%	323,141,733	416,724
LRI	372,694	0.12%	323,141,733	888,224
Pneumonia	891,718	0.28%	323,141,733	1,562,488
Source: Author's Analyses of **Medical Expenditure Panel Survey (2017)**				

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