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Dangerous Pitfalls of Database Research

Written by
Skeptical Scalpel

Two papers using the same data about the same topic were published in the same surgical journal 1 month apart. They came up with opposite conclusions. The subject was laparoscopic appendectomy, specifically whether the placement of the excised appendix in a retrieval bag before removing it through a small incision results in fewer postoperative infections.

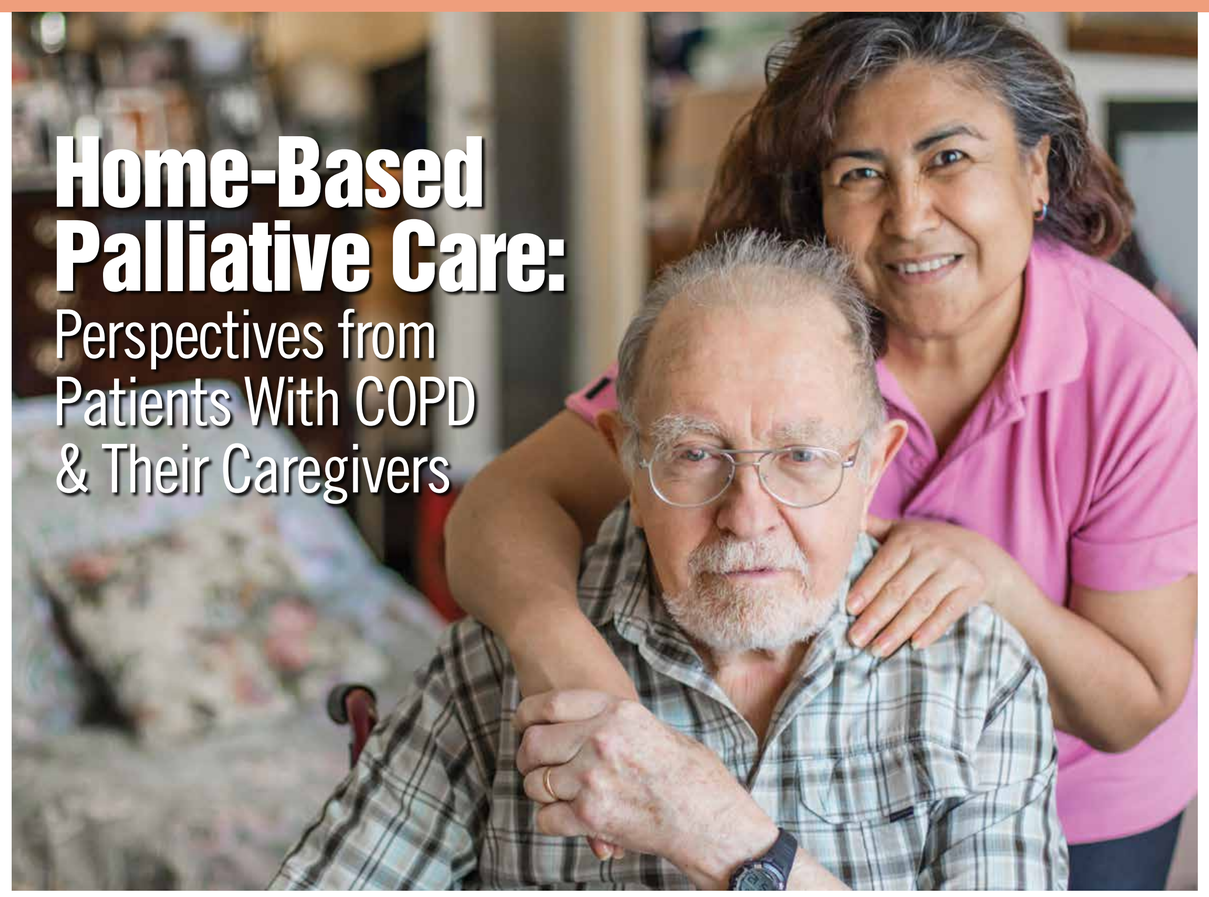
The National Surgical Quality Improvement Program (NSQIP) database for the year 2016 was used in both papers. The numbers of patients included in the studies were 11,475 in what I will call Paper A and 10,357 in Paper B. Paper A found, upon multivariable analysis, that bag use was associated with a 40% decrease in intra-abdominal infection rates. Paper B determined no statistically significant association between bag use and postoperative surgical site infection incidence.

How did both of the studies look at the same data and come up with different results? From a Viewpoint article: "… the studies use different inclusion and exclusion criteria, outcome measures, sample sizes, and covariates. These analytic decisions led to opposite findings."

The documentation of bag usage in the NSQIP database is derived from operative dictations, which may not always be accurate. For example, the Viewpoint authors reviewed data from their own institution and found when the operative note did not mention the use of a bag, the perioperative nursing log said a bag was used in 10 of 11 cases.

Abscesses most commonly occur in patients whose appendix has perforated before the operation was performed. When I asked a Viewpoint co-author how a bag could prevent abscess formation in such patients, he said, "If you are going to propose that retrieval bags reduce rates of abscess in all types of appendicitis, you have to be able to defend the biologic basis of that hypothesis." When asked if the Viewpoint called into question the value of most if not all database research papers, he said, "In a word, yes…. Many trainees have just enough competence with statistical software to be dangerous." However, he said many groups are performing valid health services and database research that can be trusted.

My unscientific Twitter poll found 79.8% of 168 respondents always use a retrieval bag when performing a laparoscopic appendectomy. The cost of a single-use laparoscopic retrieval bag ranges from $50 to $60. At least 250,000 appendectomies are done in the US yearly. Using a bag in every case would come to $12.5 million. It would be nice to know if bags really do prevent infections.



Home-Based Palliative Care: Perspectives from Patients With COPD & Their Caregivers

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A pilot study has found that home-based palliative care appears to add value to patients with COPD and their caregivers, adding an extra layer of support that participants saw as a meaningful addition to the COPD care team.

Adults with advanced COPD often experience episodes of dyspnea, anxiety, depression, fatigue, and anorexia as their disease progresses. "After patients are hospitalized with a COPD exacerbation, a lack of supportive services may result in unaddressed care needs," explains Karen F. Hyden, PhD, MSN/Ed. This can increase healthcare utilization and risks of rehospitalizations while decreasing health-related quality of life (HrQOL) for patients.

When COPD reaches the moderate to advanced stage, palliative care—specifically, home-based palliative care (HBPC)—can become a vital aspect of care. HBPC allows for the provision of advanced symptom management, advanced care planning, and conversations on goals of care in a setting in which patients and their caregivers are likely comfortable. Although HBPC offers potentially meaningful benefits to patients with COPD and their caregivers, questions remain as to which aspects of HBPC are most meaningful to them. Identifying these aspects could decrease confusion about HBPC and increase patient satisfaction when it is offered.

Assessing Patient & Caregiver Perspectives

Dr. Hyden and colleagues published a pilot study in *Chronic Obstructive Pulmonary Disease* that described domains of HBPC considered meaningful by patients with COPD and their caregivers. "Our goal was to learn what patients and caregivers found most meaningful from their palliative care services," Dr. Hyden adds. "We also wanted to inform clinicians on the importance of referring these patients to HBPC as part of their continuum of care."

Using a descriptive design with narrative analysis methodology, the study team interviewed 10 patients with COPD and their caregivers to investigate their experiences with HBPC in the 30 days after hospitalization for a COPD exacerbation. Patient and caregiver interviews were analyzed in dyads using thematic analysis.

HBPC Found to Be Meaningful

According to Dr. Hyden, although patients continued to experience COPD symptoms and some rehospitalizations, they found that HBPC was meaningful for reasons outside of physical care (Table). "The aspects of care that patients and their caregivers perceived as being meaningful most often were spiritual support and education about their diagnosis and prognosis," she says. "Palliative care specialty providers are trained to explore patients' spiritual preferences and beliefs, as well as how they relate to coping with serious illness. They offer support and can coordinate services with chaplains and other community spiritual leaders to support them. This is a holistic model that focuses on the entire person, mind, body, and spirit."

Table Home-Based Palliative Care: Meaningful Aspects & Areas for Improvement

The table below describes meaningful aspects and areas for improvement for the care patients with COPD received in the 30 days after being hospitalized and receiving a home-based palliative care intervention:

Meaningful Aspects	• Spiritual support • Emotional support • Improved quality of life
Areas for Improvement	• Advanced care planning • Symptom management

Source: Adapted from: Hyden K, Coats H, Meek P. *Chronic Obstr Pulm Dis.* 2020;7(4):327-335.

Dr. Hyden notes that palliative care specialists are also trained to have conversations with patients and caregivers to elicit information that identifies gaps in disease understanding. "They then fill in the knowledge gaps by providing education about the diagnosis and prognosis, what to expect as the disease progresses, and how to best manage symptoms at home," she says. "Empowering patients with a better understanding of these factors often results in less stress and better HrQOL. This information can ensure patients are comfortable with plans for their own care moving forward."

An Extra Layer of Support in the Home

In light of the findings, Dr. Hyden says HBPC should be viewed as a service that patients and caregivers find meaningful. "When a serious illness like moderate or advanced COPD is diagnosed, this should serve as trigger to offer a referral to palliative care," she says. "Palliative care can overlap with other healthcare services and is covered by Medicare and most commercial insurances. Knowing that HBPC can have a positive impact on patients with COPD and their caregivers by offering an extra layer of support in the home setting should drive healthcare providers to refer their patients to this service."

More research is needed to explore how well clinicians understand palliative care and their comfort level in discussing palliative care with patients with COPD to determine if these are barriers to HBPC referral. Dr. Hyden notes that some studies have indicated that clinicians are uncomfortable with prognostication in COPD. "Addressing these issues may help us develop solutions for better access to HBPC for patients with COPD," she says. "Ultimately, we need to be better at getting these patients the right level of care at the right time."

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A Physician's Guide to Surviving COVID Winter

By Rada Jones, MD

How can you survive this winter holding on to your temper, family, and job? Look out for #1. That's you. To care for others, you must care for yourself first. That's not selfish. That's smart. To protect those who need you, you must stay healthy and sane. How? These are my tips.

1 | Set rules for others and for yourself | Your sleep should be sacred. So should whatever time off you can schedule.

2 | Enlist help | So many grateful folks want to help healthcare workers. Your neighbors may be glad to walk your dog, run some errands, or grab a gallon of milk.

3 | Prioritize yourself | Pay someone to plow, buy groceries online, hire a housekeeper to save time for the things that really matter.

4 | Schedule time for yourself to exercise, meditate, pray, journal—whatever helps fill your well.

5 | Shut off the TV | Whether you're Democrat or Republican, you won't enjoy the news. Watch Hallmark, the Nature Channel, or the Food Channel. Watching food is fun, and it won't make you fat.

6 | Go outdoors | There's magic in nature and sunlight, whatever's left of it. Hike, snowshoe, and allow your lungs to breathe real air instead of the reconditioned germs they allow you in the hospital.

7 | Say no | That's a survival technique. Say no to parties, hugging strangers, doing things you shouldn't, and protecting others' feelings. Let them take care of their feelings. You take care of yourself.

8 | Cut yourself some slack | You aren't perfect. Nobody is. You'll make mistakes, gain a few pounds, step on some toes, maybe even lose it at times. So what? Just do the best you can.

9 | Read a book | Remember those things made of paper? You turn a page and land in a new world?

10 | Be careful with alcohol and substance use | They may feel good at the moment, but you'll be worse off in the long run.

11 | Watch old movies that make you laugh.

12 | Take a break from social media | Picking fights with random strangers won't help your mental health. Cut off those who hurt you.

13 | Get a cat | They have nine lives; that's why they are masters of survival. They ignore all unpleasantness, and they'll show you how. And they're the best nap helpers.

14 | Communicate | Ask your coworkers how they handle the stress. They may teach you something, and if they don't, sharing the burden will help you both.

15 | Seek help before you lose it | Check out the CDC's resources on stress and coping.

16 | Pat yourself on the back | You're a darn hero! In recycled PPE, instead of shining armor, you saved fair maidens of all genders, ages, and persuasions. With a vaccine in sight, there's a light at the end of the tunnel.

Wishing you all health, joy, and happiness. See you all on the other side.

Rada Jones is an emergency physician and can be reached at her self-titled site, RadaJonesMD, and on Twitter @jonesrada. She is the author of Overdose.

In Case You Missed It

HRRP Decreases 30-Day Readmission Rates for COPD

For patients with COPD, implementation of the Hospital Readmissions Reduction Program (HRRP) is associated with a reduction in 30-day readmissions but may increase mortality, according to a recent study published in the *American Journal of Respiratory and Critical Care Medicine.* Daniel A. Puebla Neira, MD, and colleagues examined the association between HRRP and 30-day hospital readmission and 30-day post-discharge mortality among 4,587,542 Medicare fee-for-service beneficiaries with COPD aged 65 years and older. Data were analyzed for three periods: preannouncement of HRRP (December 2006 to March 2010), announcement (April 2010 to August 2014), and implementation (October 2014 to November 2017). The researchers found that from the preannouncement period to the implementation period, there was a decrease in 30-day readmissions from 20.54% to 18.7%. For the preannouncement, announcement, and implementation periods, the 30-day risk-standardized post-discharge mortality rates were 6.91%, 6.59%, and 7.30%, respectively. An additional 1,196 and 3,858 deaths were estimated during the HRRP implementation period in equations analyses (October 2014 to April 2016 and May 2016 to November 2017, respectively).

Physician Survey on Improving Patient Compliance

Onset and duration of action and ease of use were classified higher as important parameters to increase patients' compliance, according to physicians' perspectives reported in a study published in *Pulmonology*. To investigate the perspective of physicians treating chronic airway diseases on the importance of device and substance characteristics that influence the compliance of patients with chronic obstructive airways diseases, the study investigators distributed a structured questionnaire to 144 physicians, conducted personal interviews, and evaluated answers on a scale from 1 (most important influencing parameter) to 6 (least important). In line with the findings among patients in the above study, the most important parameter influencing patients' compliance, according to physician's perspectives, was rapid onset of action, followed by type of inhalation device and duration of action. Adverse events were considered the least important parameter by physicians. When COPD and asthma were examined separately, the most important parameters influencing compliance were rapid onset of action, ease of use, and duration of action, whereas rapid onset of action was significantly more important in asthma than in COPD.