

# The 2012-2013 Influenza Epidemic and the Role of Osteopathic Manipulative Medicine

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**The 2012-2013 influenza epidemic arrived approximately 4 weeks early, augmented by an unusual variant type-A (“swine flu”) strain that caused greater-than-normal illness and a lack of efficacy in vaccination against it. Tens of thousands of people die of influenza or related complications during a non-epidemic influenza season. Osteopathic medicine can substantially help to address the complications that result from influenza. For example, during the deadly 1918-1919 Spanish influenza pandemic, osteopaths reduced patient mortality and morbidity by using lymphatic treatment techniques. Use of osteopathic manipulative treatment with vaccination, antiviral therapy, and chemoprophylaxis has potential to save lives and reduce complications. The present article describes the role of osteopathic manipulative treatment in the management of influenza and highlights current issues surrounding the use of antiviral therapy.**

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The most recent influenza season (2012-2013) arrived approximately 4 weeks early. In early January 2013, government officials in Massachusetts and New York declared a state of “public health emergency,” which gave pharmacists temporary authority to vaccinate patients.<sup>1</sup> Hospitals dealt with an increased rate of admissions and with overtaxed emergency departments during this season as patients presented with influenza-like illnesses. Physicians at 1 hospital in Allentown, Pennsylvania, set up a “mobile surge tent” in their hospital’s parking lot to facilitate triage of patients who overwhelmed the capacity of the emergency department.<sup>2</sup>

By mid-February 2013, the spikes in large-scale community outbreaks on the East Coast of the United States appeared to be diminishing.<sup>3</sup> Concerns remained, however, about the unusual H3N2v type A strain (ie, “swine flu”) that caused so many problems and against which the 2012 vaccine largely proved ineffective.<sup>4</sup> Whereas previously the H3N2 strain was observed only in pigs, in 2011 and 2012, the H3N2v strain was observed in 12 and 309 humans, respectively.<sup>5</sup> Initially pig-to-human transmission was assumed to be confined to county fairs, as observed in isolated cases in the Midwest.<sup>4</sup> In subsequent months, the variant influenza virus spread via person-to-person contact in sporadic community transmission, leading to an even greater level of concern about its management and its potential resurgence.<sup>5</sup>

There remains a great need for a “something more” to be done to deal with this highly contagious viral infection—and that “something” is embodied by what osteopathic medicine has offered in the past: a distinctive care that helped the world

manage the Spanish influenza pandemic of 1918-1919, nearly 100 years ago. Then as now, osteopathic physicians were in a unique position, armed with osteopathic manipulative treatment (OMT). Modern osteopathic physicians use OMT in conjunction with vaccination, antiviral treatment, and chemoprophylaxis to turn the tide against this devastating, highly contagious pathogen. In light of the 2012-2013 influenza season, I revisit the role of osteopathic medicine in managing influenza and its comorbidities and review current treatment and chemoprophylaxis guidelines.

### The Osteopathic Difference

In a normal, nonpandemic influenza season, Thompson et al estimated the average annual US death toll from influenza to be 36,000 of 281 million people.<sup>6,7</sup> To put this in perspective, the 1918-1919 pandemic killed approximately 675,000 of 103 million people in the United States and killed 50 million people worldwide (with the possibility of having killed as many as 100 million people worldwide).<sup>8</sup> During the pandemic, osteopaths had a substantial impact on patient care: according to Smith,<sup>9</sup> patients who received conventional (ie, allopathic) medical treatment had a death rate 40 times higher than those who received osteopathic care. Unfortunately, there is no way to tell if the osteopathic success rate can be attributed solely to osteopaths' manual medicine and care philosophy of the body's intrinsic healing abilities over statistical issues of reporting. Given that in 1918 the "standard of care" for allopathic medicine entailed many less sophisticated traditions from the late 19th and early 20th century—such as purgative (eg, calomel) treatments<sup>8</sup> and, in some (mostly rural) settings, bloodletting<sup>8,10</sup>—it is hard to imagine that osteopaths were not more successful with a system of rational healing<sup>11</sup> than many of their contemporaries were in fighting this virus.

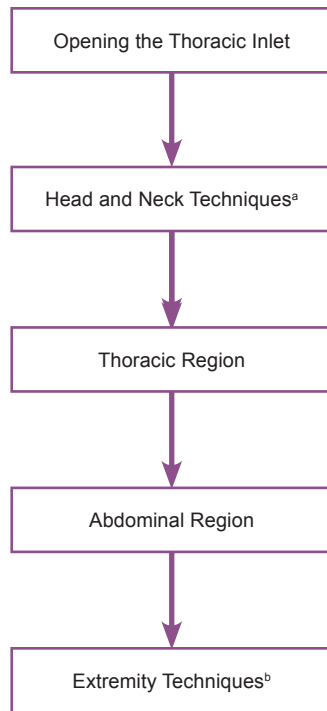
In 1918, in terms of influenza-related complications such as pneumonia, 3 times as many patients died re-

ceiving conventional medical treatment than those receiving osteopathic treatment.<sup>8,12</sup> Ward,<sup>12</sup> addressing the Eastern Osteopathic Association in 1937, suggested that OMT, particularly when applied to cervical and upper thoracic regions, can help the body recruit and optimize its own immune system to fight influenza. The lower death rate from influenza and related complications from the patient population treated by osteopaths may be attributable to the less scientifically rigorous reporting methods of morbidity and mortality.<sup>8</sup> The difference in death rates may also have been an effect of osteopaths having different "practice rights" than physicians in the allopathic medical community (ie, osteopaths were likely not on staff at allopathic hospitals where patients' deaths were recorded). One thing is certain, however: at the time of the Spanish influenza pandemic, there was a substantial difference in the mortality<sup>13</sup> of patients who were treated by osteopaths. Furthermore, what remains true today is that lymphatic drainage treatments are a safe and efficacious means of treating patients (*Figure 1* and *Figure 2*).<sup>14</sup> Ward<sup>12</sup> emphasized how OMT applied to the chest cage optimized the function of the ventilatory (ie, respiratory) system and reduced complications, and thereby reduced mortality rates. Osteopathic physicians should pay particular attention to the gentleness of the OMT techniques that they choose to perform on patients.<sup>15</sup>

A review article by Hruby and Hoffman<sup>16</sup> included a helpful, step-by-step pictorial lymphatic treatment sequence for avian influenza that can also be adapted for use with any influenza strain. McConnell<sup>15</sup> and D'Alonzo<sup>17</sup> have highlighted, 80 years apart from each other, the tremendous value of osteopathic manipulative medicine in managing influenza.

### Prevention

The best prevention is vaccination for all individuals aged 6 months or older.<sup>18</sup> The most recent accounts from the US Centers for Disease Control and Prevention for



**Figure 1.** Suggested sequence for anatomic regions and osteopathic manipulative treatment techniques, adapted from Wallace et al.<sup>14</sup> <sup>a</sup>Performed when the patient is seated. <sup>b</sup>Extremity techniques may need to be repeated in the thoracic region.

the 2012-2013 influenza season estimate the vaccine for this season's influenza strains at 56% overall efficacy, with 9% efficacy for individuals aged 65 years or older who were exposed to the type A H3N2v strain.<sup>2</sup> Even so, if someone does contract influenza A H3N2v, early antiviral treatment (ie, within the first 48 hours after symptom onset) can alleviate symptoms and decrease the risk of death or severe complicating illness (eg, bronchitis, pneumonia) caused by influenza.<sup>19-21</sup> On the basis of 2009 epidemiologic studies, when determining use of treatment and chemoprophylaxis with antiviral medications, the Advisory Committee on Immunization Practices (ACIP)<sup>18</sup> recommends practicing triage to prioritize the treatment of individuals with a greater risk of complications (*Figure 3*).

## Antiviral Treatment and Chemoprophylaxis

In terms of antiviral therapy, the ACIP<sup>18</sup> proposes neuraminidase inhibitors over amantadine and rimantadine antiviral medications, chiefly because of the high level of

resistance to amantadine and rimantadine in currently circulating viral strains. Oseltamivir (Tamiflu) and zanamivir (Relenza) are neuraminidase inhibitors and are the antiviral medications of choice for managing influenza, with a sensitivity of more than 99% in currently circulating influenza strains.<sup>18</sup> Because inhalation is its route of administration, zanamivir may prove difficult to use for those with underlying pulmonary disease. Use of oseltamivir oxycarbolate is beneficial: it can be given to most populations, including infants and pregnant women, and thus far it has been proven effective with minimal adverse events. In fact, when looking at a combination of 10 clinical trials, Kaiser et al<sup>19</sup> noted a 50% decrease in pneumonia risk among persons with laboratory-confirmed influenza who received oseltamivir compared with that of those receiving placebo. The most frequently reported adverse effect of taking a neuraminidase inhibitor was nausea and vomiting, especially if the medication was taken on an empty stomach.<sup>21</sup>

The predominant theory of viral transmission is close contact, wherein 1 person inhales large-particle respiratory droplets from another person who is 6 feet away or

<b>Opening the Thoracic Inlet</b>
Myofascial release
Direct
Indirect
Counterstrain rib 1, elevated
<b>Head and Neck Techniques</b>
Pre- and postauricular node
Mandibular drainage “raking”
Submandibular
Cervical soft tissues
Anterior tracheal
Supra- and infrahyoid
Trigeminal stimulation
<b>Thoracic Region</b>
Pectoral traction
Rib raising
Seated
Supine
Thoracic pump
Repetitive
Vacuum
Tapotement
Hacking
Clapping
Cupping
Doming the thoraco-abdominal diaphragm
<b>Abdominal Region</b>
Abdominal pump
Hepatic release
Doming the pelvic diaphragm
<b>Extremity Techniques</b>
Pedal pump
Posterior axillary fold technique
Petrissage
Effleurage

**Figure 2.** Osteopathic manipulative treatment techniques for the lymphatic system. Adapted from Wallace et al.<sup>14</sup>

Children aged <5 years, especially children aged <2 years
Persons aged ≥65 years
Those with chronic cardiac disease (except solitary hypertension), pulmonary problems, renal disease, hematologic disorders (including sickle cell disease), hepatic disease, metabolic disorders (including diabetes mellitus), or neurologic or neurodevelopmental disorders (inclusive of brain, spinal cord, peripheral nerve, and muscle such as cerebral palsy, seizure disorders, stroke, intellectual disability, moderate to severe delay, muscular dystrophy, or cord injuries)
Individuals with immunosuppression from human immunodeficiency virus or medication
Those younger than 18 years receiving long-term aspirin therapy
Indigenous groups such as American Indians or Alaskan Natives
Individuals who are morbidly obese (body mass index >40)
Residents of nursing homes or chronic care facilities

**Figure 3.** Population at greater risk of complications due to influenza.<sup>18</sup>

closer.<sup>18</sup> Persons residing in the same household as a person with pandemic or seasonal influenza should also be treated with antiviral therapy.<sup>18</sup> The use of antivirals does not, however, inhibit viral shedding,<sup>20,22</sup> although patients who acquired influenza from household contacts had a lower rate of viral shedding than the index patient—in other words, the primary patient appeared to shed more viral particles than the household contacts who acquired it from him or her. Physicians should explain to patients, especially patients who have started antiviral therapy, that although oseltamivir may make patients feel better, a patient may nevertheless still be contagious to persons around him or her. Hayden et al<sup>21</sup> reported that as soon as the antiviral medications were stopped, there was no rebound in viral shedding. Thus, only when symptoms have resolved and when antiviral medications have been discontinued can the patient return to activities of daily living without putting others at greater risk of contracting influenza.<sup>21</sup>

## Conclusion

As osteopathic physicians, we have many tools in our armamentarium to manage influenza. In addition to vaccination, adequate hand washing, and common sense hygiene, we can prescribe antiviral medication and use lymphatic pump techniques, as well as other means of OMT. As osteopathic physicians, we should embrace our heritage by continuing the work of our predecessors and by using manual medicine in conjunction with modern means of treatment such as antiviral treatment and chemoprophylaxis. Our osteopathic training enables us to maximize a patient's chances of recovering from the influenza virus with the best prognosis and smallest number of complications possible.<sup>23</sup> Should we face additional waves of new influenza infections in the coming year, the use of the gentle lymphatic treatment techniques and medications such as oseltamivir will likely help prevent many persons from getting the influenza-related complications that took so many lives during the Spanish influenza pandemic of 1918-1919. Our hands-on skills and osteopathic principles and practice continue to guide us in our goals of lessening the effect of influenza and of providing patients relief, as the founders of osteopathic medicine did more than a century ago.

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