

# Second Opinions

## Pathologists' Preventive Medicine

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Therapeutic options for cancer treatment are more tailored and more effective than ever before, and the molecular revolution promises to expand these treatment options even further. But the continued success of these therapeutic options depends upon accurate diagnoses. Indeed, in the emerging world of personalized medicine, misdiagnoses have an increasingly deleterious impact. Laura Landro's<sup>1</sup> Wall Street Journal article, "What if the Doctor is Wrong?" underscores the seriousness of pathologic (and radiologic, and clinical) misdiagnoses. One patient she speaks of in her article whose misdiagnosis was identified and corrected put it succinctly: "I felt like it was a miracle and I was spared from this unnecessary treatment."<sup>1</sup>

We pathologists have long understood the significance of misdiagnoses and the value of second opinions. Second opinions of pathology diagnoses are routinely used intradepartmentally not only for immediate patient diagnostic accuracy, but also as a tool for peer review, quality assurance, and quality improvement. These may occur as consensus conferences or mandatory second opinions of initial diagnoses of cancers. These measures to assure accuracy of diagnosis are well established in many pathology departments, both private and academic. And directed peer review—selecting specific disease types or particular sites of origin—provides added benefit by targeting latent factors that contribute to diagnostic error.<sup>2</sup>

Extradepartmental second opinions are a logical extension of intradepartmental pathology reviews. A second opinion of outside cases prior to treatment remains the best method of ensuring the highest diagnostic accuracy for cancer patients and patients with other serious conditions who go to an institution for definitive treatment. Pathologists should continue to strongly advocate for their use, especially as we move forward as a subspecialty in attempting to better assess, and improve, our own diagnostic accuracy.

In the last 2 decades, several studies have repeatedly shown the benefit of second opinions for outside diagnoses when patients have been referred for treatment. Rates of major discrepancies identified in these studies have varied widely: Abt and colleagues<sup>3</sup> found major discrepancies in 5.8% of cases; Epstein and colleagues,<sup>4</sup> 1.3%; Bruner and colleagues,<sup>5</sup> 8.8%; Wurzer and colleagues,<sup>6</sup> 13%; Santoso and colleagues,<sup>7</sup> 2%; Selman and colleagues,<sup>8</sup> 4.7%; Gupta and Layfield,<sup>9</sup> "up to 30% with a mean of approximately 10%"; Coblenz and colleagues,<sup>10</sup> 18%; Layfield and colleagues,<sup>11</sup> 8%; Tsung,<sup>12</sup> 16%; Kronz and Westra,<sup>13</sup> 5% to 7%; Manion and colleagues,<sup>14</sup> 2.3%; and Brimo and colleagues,<sup>15</sup> 14.7%. And although some of these reports examined extradepartmental second opinions generally,<sup>3,9,12-14</sup> most were directed reviews of prostate,<sup>4,6,15</sup> brain and spinal cord,<sup>5</sup> urinary bladder,<sup>10</sup> gynecologic,<sup>7,8</sup> and cytology cases.<sup>11</sup>

In the February 2013 issue of the ARCHIVES, Swapp and colleagues<sup>16</sup> examine an unprecedented 71 811 outside review cases from a 5-year period at the Mayo Clinic. Their review reinforces the value of accurate surgical pathology diagnoses, and should prompt pathologists everywhere to consider assessing their own groups' or institutions' experiences with second opinions of outside cases. Future reviews should, to the extent possible, include even broader analyses, such as, for example, to what extent the cases were reviewed by senior pathologists or pathologists with acknowledged expertise in their fields, and to what extent the outside cases were examined in a subspecialty consensus conference. Assessment of the relative values of using senior, expert pathologists and consensus conferences, as compared with using pathology staff as a whole, for second opinions of outside cases is a logical next step. Future studies should, as prior studies have, include only outside cases with already finalized diagnoses from patients presenting for definitive treatment, and not outside cases that were sent merely for an expert opinion or second opinion prior to finalizing a case.

As Dr Valenstein<sup>17</sup> emphasizes, costs of performing extradepartmental second opinions are an extremely important consideration. Total costs (and benefits) are not entirely calculable. Aside from the fairly discernible costs of processing and pathologic diagnosis, it would be necessary to consider other costs less readily quantifiable, such as the treatment costs of an incorrect diagnosis, and the emotional

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costs. Nonetheless, some second opinion studies have examined cost. Santoso and colleagues<sup>7</sup> found that “[t]he cost of pathology review is globally expensive but has consequential impact on proper treatment planning for the individual patient.” Coblentz and colleagues<sup>10</sup> noted that second review of bladder biopsies “resulted in net savings.” Epstein and colleagues<sup>4</sup> determined that their institution’s review of prostate biopsies was “cost effective,” even without including “other costs resulting from lost wages, morbidity, or potential litigation.”

Tsung<sup>12</sup> opined that “[a]s the Association of Directors of Anatomic and Surgical Pathology recommended, second pathology review should be standard practice” and that pathology societies should “adopt a strong position on this matter to influence government or insurance company[ies] to pay for this service rendered by pathologists.” Undeniably pathologists have provided these societies the ammunition to do so; 2 decades of studies consistently have shown that second opinions are cost-effective preventative medicine, preventing unnecessary surgeries, chemotherapies, and radiotherapies, as well as the potential litigation costs of misdiagnosis therapeutically acted upon. It is the second opinion—pathologists’ preventive medicine—that provided Ms Landro’s patient the miracle, and spared her the unnecessary treatment.

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