Writing a Structured Abstract

Garth Ehrlich, PhD

ILADS Program Committee

Beginning in 2019, all prospective speakers, including invited speakers, will be required to submit structured abstracts of their proposed presentations. The structured abstract is a concise summary of the entire presentation separated into sections that correspond with the sections of a scientific manuscript or a grant application. This structured format provides for more rapid review by the ILADS Program Committee and our CME provider, while also providing for greater ease of understanding by an audience. The structured abstract is comprised of five sections, which are described below.

Section one is the *Background* and should include one to two sentences regarding previous knowledge in the field prior to your study.

Section two is the *Aims,* which should state concisely the goal of the research that was performed.

Section three is either *Patients and Methods* or simply *Methods* if the study did not involve patients. In this section, a brief description should be provided of the clinical cohort(s) with regard to their size, demographics, and clinical presentations. This section should also include a brief description of the analysis methods used in the study including clinical parameters assessed, laboratory values determined, statistical methods, and bioinformatic processes. There should be no results in this section.

Section four is the *Results.* It is here that all results should be summarized with as much statistical support as possible. This section should also include any validation studies performed to confirm the principle findings.

Section five can be labeled either *Discussion* or *Conclusions* depending on the type of results obtained. If the results are definitive, the correct title would be *Conclusions*; if the results are ambiguous, contradict earlier findings, or require additional analyses, then the correct title would be *Discussion.*

Below is an example of a structured abstract from one of my papers (*Genetic Testing and Molecular Biomarkers* 20(12):721-731, 2016).

Background: Preliminary studies have identified known bacterial pathogens in the knees of patients with osteoarthritis prior to arthroplasty.

Aims: The current study was designed to determine the incidence and types of bacteria present in the synovial fluid of native knee joints from adult patients with diagnoses of septic arthritis and osteoarthritis.

Patients and Methods: Patients were enrolled between October 2010 and January 2013. Synovial fluid samples from the affected knee were collected and evaluated with

both traditional microbial culture and polymerase chain reaction – electrospray ionization – time-of-flight – mass spectrometry (MDx) to prospectively characterize the microbial content: Patients were grouped by diagnosis into one of two cohorts, those with clinical suspicion of septic arthritis (n = 44); and those undergoing primary arthroplasty of the knee for osteoarthritis (OA) (n = 21). In all cases where discrepant culture and MDx results were obtained we performed species specific 16S rRNA fluorescence *in situ* hybridization (FISH) as a confirmatory test.

Results: MDx testing identified bacteria in 50% of the suspected septic arthritis cases and 29% of the arthroplasty cases, whereas culture detected bacteria in only 16% of the former and 0% of the latter group. The overall difference in detection rates for culture and the MDx was very highly significant, p-value = 2.384×10^{-7}. All of the culture-positive cases were typed as *Staphylococcus aureus*. Two of the septic arthritis cases were polymicrobial as was one of the OA cases by MDx. FISH testing of the specimens with discordant results supported the MDx findings in 91% (19/21) of the cases including one case where culture detected *S. aureus* and the MDx detected *Streptococcus agalactiae.*

Conclusions: The MDx was more sensitive than culture as confirmed by FISH. FISH only identifies bacteria that are embedded or infiltrated within the tissue and is thus not susceptible to contamination. Not all suspected cases of septic arthritis contain bacteria, but a significant percent of patients with OA, and no signs of infection, have FISH-confirmed bacterial biofilms present in the knee.