COLLEGE of AMERICAN PATHOLOGISTS

Educational Discussion: Sweat Collection Process

2018-A Sweat Analysis (SW)

Questions from the 2018 SW-A Survey were provided in order to provide a glimpse of the sweat collection process within CAP participants.

Survey results are summarized as follows. From roughly 300 respondents, 95% of respondents perform the sweat test for less than 500 patients annually. Fifty-five percent perform diagnostic sweat testing for fewer than 100 patients annually, and 40% of respondents test between 100 and 499 patients annually. Interestingly, 4 labs report performing greater than 1000 tests on an annual basis. As for the age breakdown of patients tested, 53% of responding labs test for less than 20 patients annually who are younger than three months of age, and 35% of labs test between 20-99 of these patients each year. The frequency of testing patients is a consideration for determining the number of individuals involved in collecting sweat. Sweat collection is a very detailed and labor-intensive process. Competency is more easily maintained with increased numbers of patients.

For the collection process, 62% of respondents indicate that sweat collections are performed in duplicate as recommended by the Cystic Fibrosis Foundation. Of these respondents, 76% perform duplicate testing on separate body sites in a serial manner (one collection, then the second). The Cystic Fibrosis Foundation guideline[1,2] recommends performing duplicate collections on separate sites serially, not simultaneously.

A primary quality monitor for the sweat collection process is the rate of insufficient sweat collections. For the majority of respondents (54%) the incidence of quantity insufficient samples is reviewed more frequently or equal to every 3 months. Surprisingly, roughly 12% of respondents do not determine the incidence of insufficient samples for patients greater than 3 months of age and 14% of respondents do not assess this for patients younger than 3 months of age. Of the laboratories monitoring the percentage of insufficient samples, 69% of respondents have an incidence of 10% or less for patients younger than 3 months of age, and 60% of respondents have an incidence of 5% for patients older than 3 months of age. The Cystic Fibrosis Foundation guidelines recommend monitoring these populations for quality assessment of the sweat testing collection process. If the incidence exceeds 10% for patients less than 3 months of age or exceeds 5% for patients greater than 3 months of age, a documented investigation is recommended. Not monitoring or investigating the quantity insufficient rate for these patient populations may lead to unnecessary sweat collections, delayed diagnosis, and prolonged anxiety for families dealing with the potential diagnosis of cystic fibrosis.

The CAP Checklist for sweat chloride testing is established to promote and maintain consistency with the Cystic Fibrosis Foundation guidelines. Compliance with the Checklist will assist laboratories in maintaining good laboratory practice for the diagnosis of cystic fibrosis.

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Chemistry Resource Committee

1. Farrell PM, White TB, Ren CL, et al. Diagnosis of cystic fibrosis: consensus guidelines from the Cystic Fibrosis Foundation. *J Pediatr.* 2017;181:S4-15.
2. Farrell PM, Rosenstein BJ, White TB, et al. Guidelines for diagnosis of cystic fibrosis in newborns through older adults: Cystic Fibrosis Foundation consensus report. *J Pediatr.* 2008;153:S4-14