Literature Review Summary

Objective 1: Rate of Screening for Maternal Infection

Publication Year	Country	Study Population	CMV Testing Method	Opportunistic Screening, n (%)
2009	France	3,792 pregnant women	CMV IgM and IgG; IgG avidity	3,665 (96.5%)
2017	Israel	109,439 pregnant women	CMV IgM, plus IgG avidity for all women with IgM positive result	76,712 (70.1%)
2018	Portugal	108 women attending preconception care	NR	31 (28.7%)

Objective 2: Acceptance Rate for Diagnostic Amniocentesis

Publication Year	Country	Study Population – Number of CMV Infected Pregnant Women	Amniocentesis Rate, n (%)
2013	France	238	86 (36.1%)
2011	Germany	248	102 (41.1%)
2010	Israel	59	43 (72.8%)
2017	Israel	792	205 (25.9%)
2000	Italy[a]	138	68 (49.3%)
2000	Italy[a]	110	48 (43.6%)
2007	Italy[a]	1,650	261 (15.8%)
		445 primary infection	223 (50.1%)
		1,205 nonprimary or past infection	38 (3.2%)
2011	Italy[b]	700	302 (43.1%)
2012	Italy[c]	708	446 (62.9%)

Objective 3: Elective Termination Rates Due to CMV Infection

Publication Year	Country	Study Population – Number of CMV Infected Pregnant Women	Elective Termination, n (%)
2002	France	30	17 (56.6%)
2013	France	238	17 (7.1%)
2011	Germany	248	14 (5.7%)
2000	Italy	138	9 (6.5%)
		68 underwent amniocentesis	7 (5.1%)
		70 did not	2 (2.9%)
2000	Italy	78 underwent amniocentesis	6 (7.7%)
2006	Italy	56 who underwent amniocentesis	25 (44.6%)
2007	Italy	1,650	58 (3.5%)
		223 underwent amniocentesis	36 (16.1%)
		212 did not	17 (8.0%)
		445 primary infection	53 (11.9%)
		1,205 nonprimary or past infection	5 (0.4%)
2011	Italy	647 with primary infection	101 (15.6%)
		284 underwent amniocentesis	67 (23.6%)
		363 did not	34 (9.4%)
2012	Italy	92 CMV-positive amniocentesis	24 (26.1%)
2002	Israel	50	33 (66.0%)
2010	Israel	35 who underwent amniocentesis	6 (17.1%)
2010	Israel	59 with periconceptional infection[d]	12 (20.3%)
		43 underwent amniocentesis	10 (23.3%)
		12 did not	2 (16.7%)
2013	Israel	145	7 (4.8%)
2017	Israel	792	223 (28.2%)
		206 underwent amniocentesis	15 (7.3%)
		586 did not	208 (35.5%)
		427 low risk[e]	82 (19.2%)
		89 moderate risk[e]	21 (23.6%)
		255 high risk[e]	108 (42.4%)
2005	UK	11	3 (27.3%)

[a] Study conducted in Bologna. [b] Study conducted in Pavia. [c] Study conducted in Trieste.
[d] Periconceptional infection was defined as primary maternal CMV infection occurring within 4 weeks prior to the last reported menstrual period and up to 3 weeks following the expected date of the missed menstrual period.
[e] Low risk, avidity ≥45%; moderate risk, avidity 36%–44%; high risk, avidity 0%–35%.
CMV = cytomegalovirus; IgG = immunoglobulin G; IgM = immunoglobulin M; NR = not reported.

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1781. Assessing the Utility of First-Contact Serum Ferritin as an Augur of Severe Thrombocytopenia in *Dengue* Fever

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Background. Dengue fever is an arboviral infection with global public health concerns. Much of its impact on society is attributable to the economic ramifications on public health programs, particularly in developing countries. Hospitalization accounts for 4/5th of total direct expenditure on the disease. The identification of an inexpensive biomarker to help guide the decision to hospitalize would have great utility. Serum ferritin was selected as levels reflect both infective viral load and host immune response – factors that purportedly determine the likelihood of thrombocytopenia.

Methods. The study was conducted at α = 0.05 and β = 0.05. We included patients aged ≥12 years, of both sexes, with a definite serological diagnosis of dengue fever. We excluded patients with severe anemia (hemoglobin serum ferritin levels were measured at first medical contact. Patients were monitored with serial total blood counts, until platelet counts normalized. The primary endpoint was severe thrombocytopenia, defined as platelet count nadir <20,000/μL.

Results. We included 64 patients in the study. The receiver-operating-characteristics (ROC) curve for the association between serum ferritin levels and the primary end-point had an area-under-curve (AUC) of 0.846, implying a good test accuracy. The ideal cut-off for "high" serum ferritin was determined to be 876 ng/mL, with levels above that predicting severe thrombocytopenia with a sensitivity of 90% and specificity of 74.07%. The negative predictive value at this threshold was 97.56%. The primary endpoint was attained by 39.13% of patients with raised ferritin vs. 2.44% with lower values ($P = 0.0002$). The Odd's ratio for developing severe thrombocytopenia was 25.71. This association was consistent irrespective of sex, the day of presentation, baseline hemoglobin, or primary or secondary dengue.

Conclusion. In appropriately selected patients, serum ferritin is a reliable indicator of severe dengue fever, helping identify patients likely to require more careful observation.

Correlation between serum ferritin levels and platelet nadir
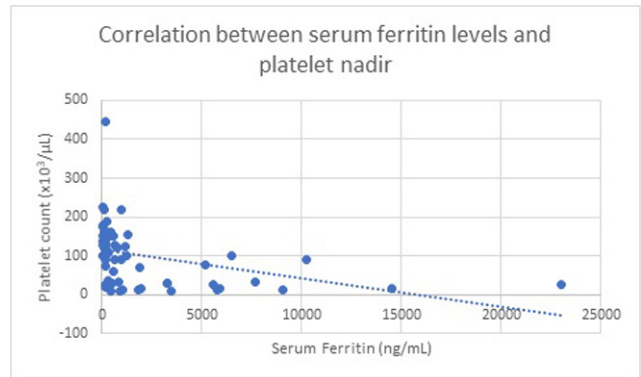
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1782. Real-World HIV Diagnostic Testing Patterns in the United States

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Background. Current HIV diagnostic laboratory testing guidelines from the US Centers for Disease Control and Prevention (CDC) recommend a sequence of tests for detection, differentiation, and confirmation of HIV-1 and HIV-2 diagnosis. There is a gap in knowledge about real-world implementation of the testing algorithm. The aim of this study was to characterize the population that underwent HIV antibody differentiation and confirmatory testing and to describe subsequent testing patterns from a large US clinical laboratory database.

Methods. Patients who received one or more HIV-1/2 antibody differentiation test (BioRad Geenius™ HIV 1/2 Supplemental Assay [Geenius]) in the Quest Diagnostics laboratory database between January 1, 2017 and December 31, 2017 were selected into the study; earliest test date was index date. Geenius tests, HIV-1 qualitative RNA (Aptima HIV-1 RNA Qualitative Assay [Aptima]), and HIV-2 DNA/RNA confirmatory tests subsequent to index date were captured. Study measures included pt demographic characteristics, testing frequency and sequencing, and test results. For patients with >1 Geenius test in 2017, concordance between index and subsequent test results was assessed.

Results. There were 26,319 unique patients identified who received ≥1 HIV antibody differentiation result from the Geenius assay. Mean age was 40.7 ± 14.3 years, 66.4% were male, and 42.5% were from southern states. Among the study population, there were 28,954 Geenius, 7,234 Aptima, and 298 HIV-2 DNA/RNA confirmatory tests. 26.4% of Geenius test results were discordant with the initial positive fourth-generation HIV screening results and required subsequent confirmatory testing. In terms of sequencing, the CDC-recommended HIV diagnostic algorithm was followed 74% of the time after screening. 8.5% of patients had >1 Geenius test in 2017; 11.2% of the retests returned different results compared with the first test.

Conclusion. The CDC recommended algorithm for HIV diagnosis is complex for laboratories to implement and currently available assays do not support testing efficiency. To mitigate observed inefficiencies and reduce the laboratory burden of HIV testing, a more accurate and reliable approach for HIV differentiation and confirmatory testing is needed.

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1783. More than Which Molecular Test: Following the Directions in How and Who to Test in the Diagnosis of Influenza

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Background. The CDC and IDSA recommend testing hospitalized patients with suspected influenza using molecular assays, in part to implement precautions to prevent transmission. Both PCR and a rapid isothermal nucleic acid amplification test (NAAT) for influenza detection are available at the University of Utah Health (UU). The UU has required the more-sensitive PCR to discontinue isolation for suspect in patients, but we hypothesized the NAAT could be sufficient in most patients.