Cytogenetics is Alive and Well at BIDMC

Jennifer Otani-Rosa, CG(ASCP), Tammy Galloway, MT(ASCP), Christine Bryke, MD Lynne Uhl, MD, Judith Jensen, Gina McCormick, MT(ASCP), Karen Eichelberger, MT(ASCP), Lisa Donovan, Min Zhang, CG(ASCP), Jeannine Pandozzi, CG(ASCP), Nandini Basavappa, Pamela Daily, CG(ASCP), Nancy Hsu, CG(ASCP), Zi Wang, CG(ASCP), Andrew McCoy, CG(ASCP), Jennifer McFalls, Yigu Chen, MPH.

**Background**

The Cytogenetics Laboratory was closed in June of 2013. Chromosome analysis and FISH testing had to be sent out to a reference laboratory creating challenges for both laboratory staff and clinicians.

**Problems that existed during this time included:**

- Interruption of the close communication between Heme/Onc, HemePath, and Cytogenetics necessary for optimal oncology patient care. Consultation regarding an unusual result, additional testing, or management of an unusual specimen is often not easily accomplished when dealing with a large reference lab.
- Increased turnaround times due to referral to the reference laboratory.
- Loss of an in-house Cytogenetics rotation for Pathology residents and fellows.

**Goal**

Reopen and expand the services of the Cytogenetics Laboratory as soon as possible, to provide prompt, accurate cytogenetic test results needed for patient care decisions.

**The Interventions**

- Obtained approval and support of BIDMC administration to open an expanded full service Cytogenetics laboratory.
- Renovated space in the Research West building for the new Cytogenetics laboratory.
- Recruited highly skilled cytogenetic technologists in chromosome analysis, FISH, microarray, and tissue culture.
- Inventoried and moved existing usable equipment into the new location.
- Selected and purchased new equipment and supplies.
- Adapted existing AP SoftPath laboratory information system for use by Cytogenetics.
- Performed validation studies for tissue culture, chromosome analysis, microarray and 84 FISH probe sets.
- Wrote 20 all new standard operating procedures by selecting and combining the best components, methods, and most efficient steps from several Cytogenetics laboratories to maximize quality and minimize cost.
- Trained and assessed competency of new staff.

**Lessons Learned**

- Starting from scratch was a huge endeavor
- Providers’ preference to do all ordering via POE/webOMR and do not want to use manual paper requisitions.

**Next Steps**

- Work with LIS/IS to prioritize the addition of Cytogenetics orders to the webOMR and POE systems.
- Explore offering Cytogenetics testing beyond BIDMC.
- Continue to optimize procedures to improve efficiencies and reduce costs where possible.

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**For more information, contact:**

Tammy Galloway, MT (ASCP), Clinical Manager
tgallowa@bidmc.harvard.edu