PAMET Newsletter

Philippine Association of Medical Technologists-USA, Inc.
Northern California Chapter

June 2016

Volume 1

President's Message *by Jun Nepacena*

May 30, 2015 was the beginning of the new era as I take on the challenge to be the chapter president of PAMET Northern California. It was a night to remember for the new officers as we emerge with a new line up of outstanding officers for the year 2015 – 2017.

The year 2015 was challenging but rewarding year. I am very proud of our accomplishments in line with our goals and commitments and they were as follows:

1. CONTINUING EDUCATION SEMINARS – Headed by our 2nd VP, Rino Ibarra and Letty Acosta as the Administrator. We hold CE seminar four times a year, a total of 24 hours of CE Credit a year. We held our CE Seminars on the following months for the year 2105.

a. JANUARY 2015

b. APRIL 2015

c. JULY 2015

d. NOVEMBER 2015

2. COMMUNITY SERVICE – every year, we support the American Cancer Society by participating with Relay for Life fund raising event. Last year, it was held at the School for the Deaf at Fremont California on June 27 – 28, 2015.

3. REVIEW CLASS - KAISER VALLEJO – Chaired by Ms. Vicky Tubig, PAMET NorCal 1st Vice President. It was held at Kaiser Vallejo from June 2015 to August 8, 2015 every weekend.

Year 2016 will be more challenging for our chapter. We kicked off with our first continuing education program in March 2016. Our guest speakers will lecture in cord blood transplantation, Zika Virus and Cord Blood for Public Banking and Research.

Additionally, the joint CE venture between PAMET NorCal and FEU-NRMF Medical Technology Alumni Society will be

held on April 9, 2016 at the University Medical

Center of Southern Nevada. We will also hold a Dinner Dance Jam Session, be more visible to the Filipino Community by joining the annual Pistahan 2016 at the Yerba Buena in San Francisco California. Moreover, PAMET NorCal officers will once again join all PAMET chapters at the PAMET USA National Convention on August 4 to 7 in Las Vegas.

Our traditional Casino trip fundraising chaired by Mr. Alan Roux will also be one of the highlights for 2016.

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To All Pamet Members:

August 24, 2013

Membership Picnic at the

Relay for Life

in BENICIA!

Look for

PAMET NORCAL Chapter

Let's Celebrate Life!

PAMET Northern California Officers 2015-2017

Review Class Update *by Vicky Tubig*

2015 Review class started in June and ended in August. We had 8 assertive, hardworking, studious and very determined students. They sacrificed their weekends, some even worked night or evening shift and still attended the class. They did their group studies on weekends and holidays when there were no classes in which a conference room is also reserved for this purpose. And we are very proud to announce that three of these students that took the CLS board exam last year passed it with flying colors. Their names are: Alma Asuncion, Ana Cabral and Ruby Golayan. Congratulations to all of you!!

The other five students will be taking the board exam this year. They continue their group studies not only because they are being inspired by their colleagues who passed, because they study hard, are determined and are ready.

To our lecturers, to my PAMET family and family members, thank you so much for your help and support as always.

Next review class will start in July. Please check our website at www.pametnorcal.org for more details.

Adapting Next Generation Technologied To Clinical Molecular Oncology Service

BY RONALD F. CARTER, PHD, DVM from CLN OCT.2015

EXCERPT by LETICIA M. ACOSTA, MS, CLS

Next generation technologies (NGT) deliver huge improvements in cost efficiency, accuracy, robustness, and in the amount of information they provide. Microarrays, high-throughput sequencing platforms, digital droplet PCR, and other technologies all offer unique combinations of desirable performance.

As stronger evidence of genetic testing's clinical utility influences patterns of patient care, demand for NGT testing is increasing. This presents several challenges to clinical laboratories, including urgency, clinical importance, and breath of application in molecular oncology. Laboratories need to add NGT-based protocols while still providing old tests, and the pace of change is increasing.

CHOOSING A PLATFORM

Instrument selection is a critical decision that has to align with intended test applications, sequencing chemistries, and analytical software. Depending on their goals, laboratories might set up NGT's for improved accuracy of mutation detection, massively higher sequencing capacity per test, more targets combined in one test, much lower cost per base pair assessed, and economy of specimen volume. When high-throughput instruments first made their appearance, laboratories paid more attention to the accuracy of base-reading: Less accurate sequencing meant more data cleaning and resequencing. Now new instrument designs have narrowed the differences, and test chemistry can have a

large impact on analytical accuracy. Before NGT's, major instruments could be current for 6 to 8 years. Now, a major instrument is obsolete much sooner, 2 to 3 years.

Laboratories face numerous technical considerations to optimize sequencing protocols, but the test has to be matched to the performance criteria needed for the clinical indication. For example, measuring response to treatment depends first upon the diagnostic recognition of mutation(s) in the tumor clone; the marker(s) then have to be quantifiable and indicative of tumor volume throughout the course of disease. Beyond choosing a platform, two distinct challenges arise in bringing NGT's in the lab. The first is assembling the resources for validation and quality assurance. The second is keeping tests up-to-date as new analytes are needed. Training staff to perform testing takes even more time. Proper validation, assembling positive controls, documenting test performance criteria, developing quality assurance protocols, and conducting proficiency testing are all very demanding. Labs meet these changes in different ways.

TYPES OF TEST INDICATIONS IN MOLECULAR ONCOLOGY

- Diagnostic panels that permit rapid subtyping
- Distinguishing sporadic from hereditary cancers for risk assessment and to guide cancer management. (e.g. BRCA testing at diagnosis of breast cancer)
- Measuring response to treatment
- Companion diagnostics and screening for druggable targets
- Pre-clinical screening for early detection of malignancy
- Non-invasive sampling (cell-free, fluid based biopsies)

The options for information technology (IT) pipelines for NGT's are improving rapidly. At the same time, recent studies still show significant inconsistencies and lack of reproducibility when it comes to interpreting variants in array comparative genomic hybridization, , panel testing, tumor expression profiling, and tumor genome sequencing. It can be difficult to duplicate published performances in clinical studies because of lack of sufficient information about the protocol (chemistry) and software. Building bioinformatics capacity is a key requirement, yet skilled people are in short supply and the qualification needed to work as bioinformatician in a clinical service are not yet clearly defined.

Tumor biology brings another level of complexity. Bioinformatic analysis must distinguish tumor-specific variants from genomic variants. One of the biggest challenges is to reproducibly interpret the clinical significance of interactions between different mutations, even with commonly known, well-defined mutations. For multiple analyte panels, such as predictive testing for breast cancer, only the performance of the whole panel in a population of patients can be compared; individual patients may be scored into different risk categories by different tests, all for the same test indication.

COMMERCIAL VALUE OF HEALTH RECORDS AND TEST DATA

The future of cancer management likely rests on large-scale databases that link hereditary and somatic tumor testing with clinical outcomes. Extracting health outcomes to correlate with molecular test results is commercially valuable, as the pharmaceutical, insurance, and healthcare sectors focus on companion diagnostics, precision medicine, and evidence-based health technology assessment. Laboratories that can develop tests will have an advantage. Besides cost per analyte, one of the drivers for taking up new technologies is that they enable multiplexing many more analytes with less biopsy material.

The Power of POOP: Fecal Material Transplant

Excerpts By: Elizabeth Dequina

Definition:

Fecal microbiota transplantation or FMT is the transfer of fecal material containing bacteria and natural antibacterials from a healthy individual into a diseased recipient. Previous terms for the procedure include fecal bacteriotherapy, fecal transfusion, fecal transplant, stool transplant, fecal enema, and human probiotic infusion (HPI). Because the procedure involves the complete restoration of the entire fecal microbiota, not just a single agent or combination of agents, these terms have now been replaced by the new term fecal microbiota transplantation. FMT is transfusion or transplant of fecal material

The human body contains 10 bacterial cells for every human cell. Our bodies have 10 times more bacteria than human cells. This vast, largely unexplored bacterial community, known as the microbiome, has been linked to many aspects of human health, from gastrointestinal diseases to obesity. Importantly, disrupting the microbiome with antibiotics can cause disease by wiping out the helpful bacteria in our guts. Fortunately, a promising therapy called Fecal Microbiota Transplantation may help patients suffering from microbiome-related conditions.

Medical use

Clostridium difficile infection

Fecal bacteriotherapy is approximately 85% to 90% effective in those for whom antibiotics have not worked or in whom the disease recurs following antibiotics.[

Most people with CDI recover after just one treatment.

A 2009 study found that fecal bacteriotherapy was an effective and simple procedure that was more cost-effective than continued antibiotic administration and reduced the incidence of antibiotic resistance.

Once considered to be "last resort therapy" by some medical professionals due to its unusual nature and 'invasiveness' compared with antibiotics, perceived potential risk of infection transmission, and lack of Medicare coverage for donor stool, position statements by specialists in infectious diseases and other societies have been moving toward acceptance of FMT as standard therapy for relapsing CDI and also Medicare coverage in the United States. It has been recommended that endoscopic FMT be elevated to first-line treatment for people with clinical deterioration and severe relapsing *C. difficile* infection.

Ulcerative colitis and other gastrointestinal conditions

While *C. difficile* is easily eradicated with a single FMT infusion, this generally appears to not be the case with ulcerative colitis. Published experience of ulcerative colitis treatment with FMT largely shows that multiple and recurrent infusions are required to achieve prolonged remission or 'cure'.

Autoimmune and neurologic conditions

The therapeutic potential of FMT in non-gastroenterologic conditions, including autoimmune disorders, neurological conditions,[11] obesity, metabolic syndrome and diabetes, multiple sclerosis,and Parkinson's disease are now being explored. As of May 2008, studies had shown that FMT can have a positive effect on devastating neurological diseases such as Parkinson's disease.[13] While Dr. Thomas Borody was experimenting with patients who were afflicted by both CDI and Parkinson's disease, he realized that after fecal therapy the symptoms of Parkinson's in his patients began to decrease; some to the point that the Parkinson's could not be detected by other neurologists. The hypothesis for future studies is that the fluctuation in the body's microbiome done by FMT can also be recreated by adding anti–Clostridium-difficile antibodies to the patient's body, a technique intended to be used in Borody's future case studies involving Parkinson's disease.

Technique]

A team of international gastroenterologists and infectious disease specialists have published formal standard practice guidelines for performing FMT which outline in detail the FMT procedure, including preparation of material, donor selection and screening, and FMT administration. There is preliminary evidence that the fecal transplant may also be delivered in the form of a pill.

Donor selection

Preparing for the procedure requires careful selection and screening of the donor and excluding those who test positive for certain diseases as well as any donor carrying any pathogenic gastrointestinal infectious agent.[vague][citation needed]Although a close relative is often the easiest donor to obtain and have tested, there is no reason to expect this to affect the success of the procedure as genetic similarities or differences do not appear to play a role.[2] Indeed, in some situations, use of a close relative as a donor may be a disadvantage as they may be an asymptomatic carrier of *C.difficile*. Donors must be tested for a wide array of bacterial and parasitic infections.[2] In more than 370 published reports there has been no reported infection transmission.[12]

Specimen preparation

Approximately 200–300 grams of fecal material is recommended per treatment[which?] for optimum results. Fresh stools have been recommended to be used within six hours, however frozen stool samples can also be used without loss of efficacy

(Continued on page 5)

The Power of POOP: Fecal Material Transplant

Continued

to saline as the dilution agent. There is also some evidence that using infusions of greater than 500 ml produces a higher success rate compared to infusions using less than 200 ml of prepared solution] Research is needed to determine whether certain mixing methods such as using an electric blender reduce the efficacy of treatment via oxygenating the solution and killing obligate anaerobes. The fecal transplant material is then prepared and administered in a clinical environment to ensure that precautions are taken

Administration

Numerous techniques have been published, and choice depends on suitability and ease. The procedure involves single or multiple infusions of bacterial fecal flora originating from a healthy donor by enema, through a colonoscope, or through a nasogastric or nasoduodenal tube. There does not appear to be any significant methodological difference in efficacy between the various routes] A recent study has shown that fecal transplant through colonoscopy has a better outcome than transplant performed with a nasogastric or nasoduodenal tube, with a success rate of 90% of patients treated with transplant by colonoscopy vs 81% [] of patients treated with transplant by NG tube.

Autologous restoration of gastrointestinal flora]

A modified form of fecal bacteriotherapy (autologous restoration of gastrointestinal flora—ARG) commenced development as of 2009. An autologous fecal sample, provided by the patient before anticipated medical treatment with antibiotics, is stored in a refrigerator. Should the patient subsequently develop *C. difficile* infection the sample is extracted with saline and

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Adapting Next Generation Technologied To Clinical Molecular Oncology Service

(Continued)

Small, rapid, cheap, and single use point-of-care (POC) sequencing devices are coming. Some can multiplex with analytical times as short as 20 minutes. Accurate and timely testing will be possible in places like pharmacies, oncology clinics, patient service centers, and outreach programs. Whether physicians will trust POC results alone, remains to be

CONCLUSION

Molecular biology is moving rapidly from an esoteric niche of diagnostics to a mainstream, required component of integrated clinical laboratory services. While NGTs are markedly reducing the cost per analyte and per specimen, and will broaden the scope and volume of testing performed, the are daunting for smaller labs. Aligning test capacity with approved clinical indications will require careful and constant attention to ensure competitiveness.

L.M. Acosta

Jan. 2016

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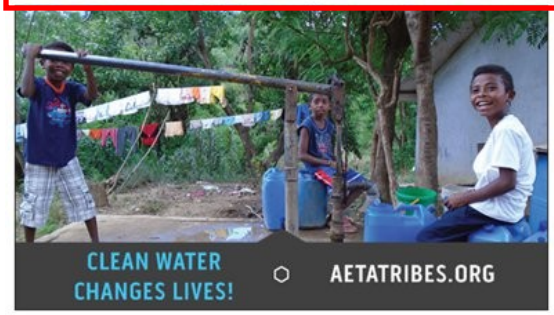
A Non-Profit Charitable Organization 501C-(3) Donations are tax deductible



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The Power of POOP: Fecal Material Transplant (Continued)

filtered.There is evidence that the relapse rate is 2 fold greater when water is used as opposed to saline as the dilution agent. There is also some evidence that using infusions of greater than 500 ml produces a higher success rate compared to infusions using less than 200 ml of prepared solution[] Research is needed to determine whether certain mixing methods such as using an electric blender reduce the efficacy of treatment via oxygenating the solution and killing obligate anaerobes. The fecal transplant material is then prepared and administered in a clinical environment to ensure that precautions are taken

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Autologous restoration of gastrointestinal flora]

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Standardised filtrate]

Researchers have also produced a standardised filtrate composed of viable fecal bacteria in a colourless, odourless form The preparation has been shown to be as effective at restoring missing and deficient bacterial constituents as crude homogenised FMT.

Public stool bank in the United States]

In 2012, a team of researchers from the Massachusetts Institute of Technology founded OpenBiome, the first public stool bank in the United States OpenBiome provides clinicians with frozen, ready-to-administer stool samples for use in treating *C. difficile*, and supports clinical research into the use of faecal transfer for other indications.

References:

https://**en.wikipedia.org**/wiki/**Fecal_bacteriotherapy**

thepowerofpoop.com

*www.openbiome.org/***about-fmt**

thefecaltransplantfoundation.org/what-is-f

Articles Researched and collected By Liz Dequinia

Palace Station Hotel & Casino is located 5 miles from McCarran International Airport and a quarter mile from the Las Vegas Strip.
Palace Station houses 1,017 hotel rooms and suites in our Tower or Courtyard buildings. For the adventure seekers, there is over 84,000 square feet of casino space with live games, poker, slot and video poker machines, race and sports book and bingo. In addition we have ten tantalizing choices for dining, 4 bars and lounges.

Additional features that will be of interest to our guests are:
- Free scheduled courtesy shuttle service to and from McCarran International Airport
- Free scheduled courtesy shuttle to and from the Las Vegas Strip
- Complimentary high-speed Internet access included
- Free parking
- Experienced and dedicated staff trained in "Beyond the Best" service
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- Self Service Business Center
- Two swimming pools, Jacuzzis and workout facility
- Full service beauty salon
- Ten dining choices, plus 24 hour room service
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- The rates presented are net, non-commissionable for single or double occupancy (Additional $15 for triple and $30.00 for quad occupancy).
- Room rates are subject to a 12% Clark County room tax and Hotel Service Fee of $9.99 per room, per night. Please note: Room tax is subject to change at any time without prior notice.

Palace Station Hotel and Casino will take reservation for PAMET-USA 2016 Biennial National Convention until 07/05/2016, unless the hotel sells out before this date. After this date the hotel will take reservations on an availability basis and at prevailing hotel rates.

Reservation Procedures:
Individuals attending the PAMET-USA 2016 Biennial Convention are to call the Reservations Office at (800) 634-3101 and ask for offer code **PCIPAME** or use web link below.
https://rooms.scfv.com/cgi-bin/lansaweb?PROCFUN+RN+RESNET+PAL+funcparms+CP%28A2580%29;PCIPAME;?/

In order to receive the PAMET-USA 2016 Biennial Convention room rate, a credit card must be posted and will be charged 1 night room and tax. A 72 hour notice is required to cancel a room without penalty. A $100 security deposit is required either by credit card or cash upon check in.

PAMET USA
2016
15th Biennial National Convention
Las Vegas, Nevada
August 4-7, 2016

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PAMET Northern CaliforniaActivities

Our speakers during our 2015-2016 Continuing Education