Data collected from 722 bed hospital in MS

EVALUATION OF OXYPRAS PLUS™ BRUCELLA AND BBE/KVL BI-PLATE TO CURRENT PRAS MEDIA

05/23/2013

PRINCIPLE

The goal of this evaluation was to compare our current PRAS media for anaerobes to OxyPRAS Plus™ to determine the relative performance of each medium and to compare costs.

PROCEDURE

We tested 38 isolates of gram positive and gram negative anaerobes. These isolates were from clinical specimens and were stored frozen. After thawing, each isolate was suspended into Tripticase Soy Broth (TSB) to a density level equal to a 0.5 McFarland standard. From the standardized suspension, we streaked our current PRAS plates and the Oxyrase Brucella and BBE/LKV Bi-Plate. The plates were incubated for 48 hours then observed and graded for growth on a scale of 1+ to 4+, 4+ being very good growth. Also appearance was noted on some isolates for the clearness of beta-hemolysis or the blackening of the BBE agar.

The isolates from each medium was used for identification by Vitek 2 ANC anaerobic identification card. Results were compared. Any significant difference in identification was retested on the card again. If identification warranted, offline biochemical tests were performed.

RESULTS

We compared the 38 anaerobe isolates for growth on the two media sources by grading for the amount of growth by scoring the number of colonies and by measuring colony size. 8 of the isolates did not grow on either the Oxyrase PRAS or the current PRAS media. Oxyrase demonstrated very good recovery and growth of *Bacteroides fragilis group, Fusobacterium species, Prevetolla species, Peptostreptococcus species, Clostridium subtilis, and Proponibacterium species.* Oxyrase showed better recovery and growth over our current anaerobe PRAS media for *Proponibacterium, Bacteroides species, Prevetolla species, Fusobacterium and some Peptostreptococcus species.* Looking at the recovery of *Clostridium*

perfringens, both agars were equivalent in recovery and size of the colonies; however the double zone beta-hemolysis was much more distinct and clear on the Oxyrase Brucella. *Prevetolla melaninogenica* was comparable on both systems, but the yellow pigmentation was noted more apparent on the Oxyrase Brucella. Two isolates of *Peptostreptococcus species* showed slightly better growth on our current PRAS Brucella agar. One *Prevetolla buccae* isolate had the same recovery of growth on both systems, but the colony size was notably smaller on the Oxyrase Brucella agar.

23 isolates from either media system showed excellent identification by the Vitek 2 ANC card identification system. Any score of 86% or above is considered excellent identification. 3 isolates gave a split Identification on the Oxyrase system with 2 of them resolved by performing an anaerobe catalase which resolved the identification. One isolate of *Finegoldia magna* identified with 99% on Oxyrase but gave a split Identification on our current PRAS system, which was resolved by performing an anaerobic indole. 3 isolates gave no identification on both systems, which could be due to the age of the anaerobe isolate used.

The OxyPRAS Plus Brucella and BBE/LKV Bi-Plate provided by Oxyrase showed very good correlations by looking at recovery and growth as compared to our current PRAS system. Both media were comparable for anaerobe identification.

CONCLUSION

OxyPRAS Plus™ differ from our current PRAS plates in a number of ways.
First, standard PRAS plates are prepared by gassing the media to remove oxygen and to reduce the medium prior to heat sterilization. In contrast OxyPRAS Plus™ media is treated enzymatically to remove oxygen and to reduce it prior to sterilization. The enzyme Oxyrase is added back to the finished plate and actively continues to remove oxygen and keeps the plate reduced while the plate is on the bench top in an open environment. This not only protects the plate but also the specimen on the plate from oxygen. Unlike the standard PRAS plate that is static and oxidizes in this open environment. This allows the microbiologists greater work flexibility when working with anaearobes in an open environment. The OxyPRAS Plus™ plates have been noted to increase the recovery of injured cells.

OxyPRAS Plus™ plates are 50% thicker in media (24g) than our current PRAS media. This provides for a longer shelf-life of these plates. The thickness of the plate provides for longer incubation times without cracked media. Finally, the thickness of plate makes plate streaking.easier.

OxyPRAS Plus™ plates have a 3 month shelf-life at room temperature or 6 months at refrigerated temperature. This helps in managing plate inventory and eliminates plate loss due to expired plates.

OxyPRAS Plus™ plates provide us with some a cost advantage over our current PRAS media. Firstly, they will provide value added pricing which allows us to receive price savings by being able to order direct with volume discounts. Secondly, utilizing Oxyrase, Inc. FedEx discount gives us a savings of $240 every 2 weeks. The overall yearly savings with OxyPRAS Plus™ is $6,240 compared to our current PRAS supplier. OxyPRAS Plus™ products are also available through Cardinal.

Based on our study, OxyPRAS Plus plates would provide us with the recovery and identification of anaerobes as good as or better than our current PRAS media.

The cost savings Oxyrase provides, due to reduced plate costs and lower shipping costs, lower our cost for media for anaerobes by approximately $6,240 annually.

My recommendations are to replace our current anaerobe PRAS media with OxyPRAS Plus Brucella and BBE/LKV Bi-Plate media.

Interim Lab Manager and Lead Anaerobe Tech, Clinical Microbiology 6/28/2013

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Section Director **Laboratory Director**