

KEYPOINTS/BENCH MARKS

D. Intervention and Management

- We are leaving the “killing “ philosophy of antibiotic therapy , addressing a much broader approach of “disarm” and/or “replace “ recognizing the “Dual Citizenship “ of our symbiotic microbes , implementing the theme proposed by Dr Sturat Levy in 2002 (Ref) and Minimal Intervention (MI), highlighting untoward collateral damage of antibiotics .
- Benefits of microbial cooperation (Shared Benefits), bug to bug and bug to human cell, are evolving as the ‘social evolution’ of microbial balance is highlighted thru greater understanding of microbial “mutualism”, driven by newer molecular methods.
- Co -intervention strategies of disruption/reconstruction are gaining focus, recognizing disruption creates a microbial vacuum or imbalance in the targeted microbiota, ripe for overgrowth, often fungal.
- Broad intervention is focusing on “Public Inhibition” where a general microbial/biofilm target is available, which is in contrast to a focused therapy addressing specific targets such as “Pilicides and Curlicides” the most notable curli is amyloid-like , found in most *Enterobacteriaceae* .
- Target potentiation is enhanced by recently described “Chaperones” which magnify and amplify the specific activity as a cofactor.
- “Spatial complexity and integrity” defines the new term Bio-Geometry and provides a new approach for disruption of biofilm associated pathogenicity,

recognizing 90% of a biofilm is unoccupied with micro flow and nutritional requirements that are unique to mixed microbes and an ecofriendly opportunity for disruption, possibly employing 3-D-microprinting surfaces or gauzes .

- The use of metagenomics and disease intervention is evolving as a “Gene Mining “ or “Functional Genomics” Therapy, where therapeutic bacteria and Restorative Microbiology focuses on selected genetic expression, often immunomodulating , organized as pro-inflammatory vs healing, best characterized by the “Yin and Yang “ Hypothesis (Ref).
- Therapy should maintain or re-establish the low prevalence, highly diversified commensal population, recognizing the protective benefit thru nutrient depletion and lack of suitable environment for secondary, traditional pathogens colonization in non -sterile sites.
- Alteration of surface structures via new application of SLIPs and micro architecture (Shaklet) or 3-D micro-printing have proven anti-biofilm and ecofriendly.