



Meeting Title:	Subcommittee on Antifungal Susceptibility Testing	Contact:	mhackenbrack@clsi.org
Meeting Date:	Tuesday, 25 June 2019	Secretary	Camille Hamula, PhD , D(ABMM)
Start Time:	2:00 PM Eastern (US) time	End Time:	3:30 PM
Meeting Purpose:	The purpose of this meeting is to provide updates on SC business and activities.		
Requested Attendee(s):	SC members, advisors, and reviewers		
Attendee(s):			
Gary W. Procop, MD, MS Chairholder		Cleveland Clinic	
Barbara D. Alexander, MD, MHS Vice-chairholder		Duke University Medical Center	
Camille Hamula, PhD, D(ABMM) Secretary/Advisor		Saskatoon Health Region/University of Saskatchewan	
Members Present:			
Philippe J. Dufresne, PhD, RMCCM		Institut National de Santé Publique du Québec	
Jeff Fuller, PhD, FCCM, D(ABMM)		London Health Sciences Centre	
Luis Ostrosky-Zeichner, MD, FACP, FIDSA, FSHEA, CMQ		McGovern Medical School	
Audrey N. Schuetz, MD, MPH, D(ABMM)		Mayo Clinic	
Nathan P. Wiederhold, PharmD		University of Texas Health Science Center at San Antonio	
Adrian M. Zelazny, PhD, D(ABMM)		National Institutes of Health	
Members Excused:			
Mahmoud A. Ghannoum, PhD, FIDSA, MBA		Case Western Reserve University	
Kimberly E. Hanson, MD, MHS		University of Utah and ARUP Laboratories	
Nicole M. Holliday, BA		Thermo Fisher Scientific	
Advisors Present:			
Elizabeth Berkow, PhD		Centers for Disease Control and Prevention	
Tanis Dingle, PhD, D(ABMM), FCCM		University of Alberta Hospital Laboratory	
Kerian K. Grande Roche, PhD		FDA Center for Devices and Radiological Health	
Scott B. Killian, BS		Thermo Fisher Scientific	
Shawn R. Lockhart, PhD, D(ABMM)		Centers for Disease Control and Prevention	
David S. Perlin, PhD		Hackensack Meridian Health	
David H. Pincus, MS, RM/SM(NRCM), SM(ASCP)		bioMérieux, Inc.	
Ribhi M. Shawar, PhD, D(ABMM)		FDA Center for Devices and Radiological Health	
Paul E. Verweij, MD, FECMM		Radboud University Medical Center	
Sean X. Zhang, MD, PhD, D(ABMM)		Johns Hopkins University	
Reviewers Present:			
Tanaya Bhowmick, MD		Rutgers Robert Wood Johnson Medical School	
Michael Birch, PhD		F2G Ltd.	
Jeffery Brocius		FDA Center for Devices and Radiological Health	
Tanis Dingle, PhD, D(ABMM), FCCM		University of Alberta Hospital Laboratory/ University of Alberta Hospital	
Guillermo Garcia-Effron, PhD		Universidad Nacional del Litoral	
Natasha N. Pettie, PharmD, BCPS (AQ-ID)		University of Chicago Medicine	



Ping Ren, PhD	The University of Texas Medical Branch
John H. Rex, MD	F2G Ltd.
Kalavati Suvarna, PhD	US Food and Drug Administration
Vera Tesic, MD, MS, D(ABMM), M(ASCP)	The University of Chicago
Maria M. Traczewski, BS, MT(ASCP)	The Clinical Microbiology Institute
Nancy Zhao, PhD	Public Health Research Institute, Rutgers University
Staff Present:	
Emily J. Gomez, MS, MLS(ASCP)MB	CLSI
Marcy L. Hackenbrack, MCM, M(ASCP)	CLSI
Christine Lam, MT(ASCP)	CLSI

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AGENDA				
#	Time	Presenter	Description	Background
1.	2:00 PM	Dr. Procop	Opening remarks	N/A
2.	2:05 PM	Dr. Procop	<ul style="list-style-type: none"> Review and approve agenda VOTE: January 2019 Meeting Summary minutes DOI Updates 	2019_June_ASFC_Agenda 2019_Jan_ASFC_Agenda_Summary_Minutes DOI Summary
3.	2:10 PM	Dr. Lockhart Dr. Dufresne	ECV WG Update	N/A
4.	2:20 PM	Dr. Dufresne Dr. Castanheira	Update on M59 revision	M59 draft Comments for next ed.
5.	2:30 PM	Dr. Schuetz Dr. Tesic	Antifungal Reporting WG Update	Files 5a-5q
6.	2:50 PM	Dr. Zelazny Dr. Berkow Dr. Procop Dr. Alexander	Update on M60 revision <i>C. parapsilosis</i> complex breakpoints: Plan for reporting and footnote to include	M60 draft Email discussion
7.	3:00 PM	Dr. Fuller Dr. Weiderhold	Update on M61 revision	M61 draft
8.	3:10 PM	Dr. Procop	Update on taxonomy issue	N/A
9.	3:20 PM	Dr. Procop	Other business <ul style="list-style-type: none"> Outreach WG Liaison 	Outreach WG Description
10.	3:30 PM	Dr. Procop	Adjournment	N/A

SUMMARY MINUTES	
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1.	Dr. Procop opened the Web conference at 2:04 PM Eastern (US) time by thanking the attendees for joining and for their continued participation on the subcommittee.
2.	<p>Web conference agenda, January 2019 meeting summary, and the disclosure of interest summary review.</p> <ul style="list-style-type: none"> There were no objections or changes to the agenda. <p>A motion to accept the agenda was made and seconded. Vote: 6 for; 0 against; 3 absent (Pass)</p> <ul style="list-style-type: none"> There were no additional revisions to the summary. <p>A motion to accept the January 2018 meeting summary was made and seconded. Vote: 6 for; 0 against; 3 absent (Pass). NOTE: The minutes have been posted on the Antifungal Subcommittee page on the CLSI website.</p> <ul style="list-style-type: none"> There were no revisions to the DOI summary
3.	<p><u>Epidemiological Cut off Value (ECV) Working Group (WG) Report (Philippe Dufresne)</u> ECV WG Roster: Shawn Lockhart (Chairholder), Philippe Dufresne (Vice-Chairholder); Nathan Wiederhold (Committee Secretary); Elizabeth Berkow, Jeff Fuller, Mahmoud Ghannoum, Kerian Grande Roche, Kimberly Hanson, John Turnidge, Thomas Walsh (Members); Michael Birch, Mariana Castanhiera (Advisors).</p> <ul style="list-style-type: none"> An update on Round 2 (rare species) of ECV data collection was provided. <ul style="list-style-type: none"> 9 new <i>Candida</i> spp. have been selected for data collection. These are rare species selected based on their prevalence and as part of a species complex. Additional isolates are needed for those species in red. <ul style="list-style-type: none"> <i>Candida auris</i>* (1200 isolates; 4 laboratories) - Ready to calculate ECVs <i>Candida haemulonii</i> (47 isolates; 9 laboratories) <i>Candida duobushaemulonii</i> (95 isolates; 8 laboratories) <i>Candida metapsilosis</i> (137 isolates; 10 laboratories) - Ready to calculate ECVs <i>Lodderomyces elongisporus</i> (25 isolates; 6 laboratories) <i>Candida rugosa</i> (35 isolates; 9 laboratories) <i>Candida pararugosa</i> (40 isolates; 6 laboratories) <i>Candida bracarensis</i> (30 isolates; 6 laboratories) <i>Candida nivariensis</i> (42 isolates; 9 laboratories) Dr. Dufresne noted that Mr. Pincus believes he can provide additional isolates and would like some laboratories perform the testing. Dr. Procop encouraged anyone with rare species isolates to submit them to Mr. Pincus and a laboratory will be recruited to perform the testing. An update on data collection for <i>Candida auris</i> was provided. <ul style="list-style-type: none"> Isolates have been collected by: <ul style="list-style-type: none"> Beth Berkow and Shawn Lockhart (CDC): >1000 isolates Anudhara Chowdary (Patel Chest Institute): 100 isolates Philippe Dufresne (LSPQ) - CDC collection and Public Health Ontario: 40 isolates Sudha Chaturvedi (NYSDOH-Wadsworth, NY): 60 isolates Over 1200 isolates from four different laboratories have been collected and are ready for ECV calculations. Data from the CDC have shown multi-modal distributions for <i>C. auris</i> and caspofungin, itraconazole, and voriconazole. Information on the resistance genotype will be important (<i>ERG11</i>, <i>FKS</i>, etc.) The data will be compiled during the next several months and is expected to be ready for review and vote at the January 2020 meeting.

SUMMARY MINUTES

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4.	<p>M59 Revision (Philippe Dufresne and Mariana Castanheira)</p> <ul style="list-style-type: none"> • Approved ECVs for five <i>Candida</i> spp. have been added. <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Species</th> <th style="text-align: left;">Antifungal</th> <th style="text-align: center;">Proposed ECV</th> <th style="text-align: center;"># Labs</th> <th style="text-align: center;"># isolates</th> </tr> </thead> <tbody> <tr><td><i>C. dubliniensis</i></td><td>Amphotericin B</td><td style="text-align: center;">0.5</td><td style="text-align: center;">5</td><td style="text-align: center;">461</td></tr> <tr><td><i>C. dubliniensis</i></td><td>Itraconazole</td><td style="text-align: center;">0.25</td><td style="text-align: center;">5</td><td style="text-align: center;">595</td></tr> <tr><td><i>C. dubliniensis</i></td><td>Posaconazole</td><td style="text-align: center;">0.125</td><td style="text-align: center;">6</td><td style="text-align: center;">722</td></tr> <tr><td><i>C. lusitaniae</i></td><td>Caspofungin</td><td style="text-align: center;">1</td><td style="text-align: center;">6*</td><td style="text-align: center;">580*</td></tr> <tr><td><i>C. lusitaniae</i></td><td>Amphotericin B</td><td style="text-align: center;">2</td><td style="text-align: center;">4</td><td style="text-align: center;">447</td></tr> <tr><td><i>C. guilliermondii</i></td><td>Amphotericin B</td><td style="text-align: center;">2</td><td style="text-align: center;">4</td><td style="text-align: center;">167</td></tr> <tr><td><i>C. guilliermondii</i></td><td>Caspofungin</td><td style="text-align: center;">2</td><td style="text-align: center;">5</td><td style="text-align: center;">204</td></tr> <tr><td><i>C. guilliermondii</i></td><td>Itraconazole</td><td style="text-align: center;">2</td><td style="text-align: center;">4</td><td style="text-align: center;">146</td></tr> <tr><td><i>C. orthopsilosis</i></td><td>Anidulafungin</td><td style="text-align: center;">2</td><td style="text-align: center;">3</td><td style="text-align: center;">145</td></tr> <tr><td><i>C. orthopsilosis</i></td><td>Micafungin</td><td style="text-align: center;">1</td><td style="text-align: center;">3</td><td style="text-align: center;">145</td></tr> <tr><td><i>C. orthopsilosis</i></td><td>Fluconazole</td><td style="text-align: center;">2</td><td style="text-align: center;">3</td><td style="text-align: center;">145</td></tr> <tr><td><i>C. orthopsilosis</i></td><td>Voriconazole</td><td style="text-align: center;">0.125</td><td style="text-align: center;">3</td><td style="text-align: center;">145</td></tr> <tr><td><i>C. orthopsilosis</i></td><td>Posaconazole</td><td style="text-align: center;">0.25</td><td style="text-align: center;">3</td><td style="text-align: center;">145</td></tr> <tr><td><i>C. kefyr</i></td><td>Amphotericin B</td><td style="text-align: center;">2</td><td style="text-align: center;">4</td><td style="text-align: center;">135</td></tr> <tr><td><i>C. kefyr</i></td><td>Anidulafungin</td><td style="text-align: center;">0.25</td><td style="text-align: center;">3</td><td style="text-align: center;">125</td></tr> <tr><td><i>C. kefyr</i></td><td>Micafungin</td><td style="text-align: center;">0.125</td><td style="text-align: center;">4</td><td style="text-align: center;">145</td></tr> <tr><td><i>C. kefyr</i></td><td>Fluconazole</td><td style="text-align: center;">1</td><td style="text-align: center;">4</td><td style="text-align: center;">129</td></tr> <tr><td><i>C. kefyr</i></td><td>Itraconazole</td><td style="text-align: center;">0.5</td><td style="text-align: center;">5</td><td style="text-align: center;">111</td></tr> <tr><td><i>C. kefyr</i></td><td>Posaconazole</td><td style="text-align: center;">0.5</td><td style="text-align: center;">5</td><td style="text-align: center;">154</td></tr> </tbody> </table> <ul style="list-style-type: none"> • Dr. Dufresne questioned if <i>C. lusitaniae</i> shows intrinsic and/or inducible resistance to amphotericin B. He suggested reviewing the literature to provide references for a comment to be added. <ul style="list-style-type: none"> – Dr. Wiederhold reported that he has already researched this question and found references that report that the resistance is inducible. He will send the references to Dr. Dufresne, Dr. Castanheira and Dr. Schuetz. – Dr. Walsh noted that it is inducible resistance. The M59 WG will confer with the Intrinsic resistance WG to draft language for <i>C. lusitaniae</i>. – No resistance has been shown with the M27 broth microdilution (BMD) method. – It was questioned if a comment is needed (eg, some authors have reported the <i>C. lusitaniae</i> is intrinsically resistant to amphotericin B. In those studies, the resistance phenotype was only observed using the gradient diffusion method but was not detected using broth microdilution.) – Dr. Shawar commented that gradient diffusion data should not be included as it is not the reference method. All agreed that the data will be for testing performed with the BMD method. – The Antifungal Reporting WG will help to draft a comment. • ECV data for <i>C. parapsilosis</i> complex were discussed. It was questioned if the ECVs should be separate for <i>C. parapsilosis</i> sensu stricto, <i>C. orthopsilosis</i>, and <i>C. metapsilosis</i> rather than for the complex. Most of the data generated to set the ECV was collected before laboratories had the ability to identify the species within the complex. <ul style="list-style-type: none"> – Dr. Procop questioned if the isolates used to set the ECVs could be re-identified to determine if they are <i>C. parapsilosis</i> or another species within the complex. – Dr. Dufresne noted that with the current method for submitting data, reanalysis would likely not work. – MIC data to set ECVs for <i>C. parapsilosis</i> sensu stricto was requested as there might be an impact in the breakpoints. – Dr. Dufresne requested that MIC data for <i>C. metapsilosis</i> and <i>C. orthopsilosis</i> be submitted to himself or Dr. Lockhart for analysis. 	Species	Antifungal	Proposed ECV	# Labs	# isolates	<i>C. dubliniensis</i>	Amphotericin B	0.5	5	461	<i>C. dubliniensis</i>	Itraconazole	0.25	5	595	<i>C. dubliniensis</i>	Posaconazole	0.125	6	722	<i>C. lusitaniae</i>	Caspofungin	1	6*	580*	<i>C. lusitaniae</i>	Amphotericin B	2	4	447	<i>C. guilliermondii</i>	Amphotericin B	2	4	167	<i>C. guilliermondii</i>	Caspofungin	2	5	204	<i>C. guilliermondii</i>	Itraconazole	2	4	146	<i>C. orthopsilosis</i>	Anidulafungin	2	3	145	<i>C. orthopsilosis</i>	Micafungin	1	3	145	<i>C. orthopsilosis</i>	Fluconazole	2	3	145	<i>C. orthopsilosis</i>	Voriconazole	0.125	3	145	<i>C. orthopsilosis</i>	Posaconazole	0.25	3	145	<i>C. kefyr</i>	Amphotericin B	2	4	135	<i>C. kefyr</i>	Anidulafungin	0.25	3	125	<i>C. kefyr</i>	Micafungin	0.125	4	145	<i>C. kefyr</i>	Fluconazole	1	4	129	<i>C. kefyr</i>	Itraconazole	0.5	5	111	<i>C. kefyr</i>	Posaconazole	0.5	5	154
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SUMMARY MINUTES

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	ECV <i>C. parapsilosis</i>*	ECV <i>C. orthopsilosis</i>	Δ dil.
	Amphotericin	2	-
	Anidulafungin	8 (BP: 8)	-2 dil.
	Micafungin	4 (BP: 8)	-2 dil.
	Fluconazole	1 (BP: 8)	+1 dil.
	Posaconazole	0.25	=
	Voriconazole	0.03 (BP: 1)	+ 2 dil.

**C. parapsilosis* complex from M59 Ed2 and M60 Ed1

- A new table (Table 5) for *Aspergillus fumigatus* for molds that have ECVs and breakpoints (voriconazole) has been added.
 - *Aspergillus fumigatus* voriconazole ECVs will be moved from the ECV only table to the table for molds with breakpoints.

Table 5. Epidemiological Cutoff Values* for In Vitro Susceptibility Testing of *Aspergillus* spp. With Breakpoints¹⁻⁸

<u>Antifungal Agent</u>	<u>Species</u>	<u>ECV, μg/mL^{†,‡,§}</u>
Voriconazole	<i>A. fumigatus</i>	<u>1</u>

- It was noted that the ECV is for *Aspergillus* spp. while the breakpoint is for *A. fumigatus* only.
- The M59 WG proposed that a new table (Table 6) be added that provides a summary of fungal species for which there are approved ECVs and/or breakpoints.
 - Dr. Dufresne suggested using it as a table or in an appendix and information on truncated data could be added in future editions.
 - Dr. Schuetz suggested that it could be updated with information on intrinsic or inducible resistance in future editions.
 - The SC agreed that the table is useful and should be added to M59.
 - All language will be synchronized with M59.
 - Discussion
 - Dr. Shawar questioned the need for published ECVs when breakpoints are available. The AST SC deletes the ECV when a breakpoint is available.
 - Dr. Dufresne noted that it is mentioned multiple times in the document that if a breakpoint is available, the breakpoint should be used. The ECV should never be used as a breakpoint. Dr. Dufresne agreed that the WG will consider adding clarifying language to the table.
 - Dr. Walsh warned that the SC should be careful not to stray too far from the SCs mission with ECVs. It needs to be emphasized that breakpoints must always be used when they are available.

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	<p align="center">Table 6. Summary of Available CLSI Epidemiological Cutoff Values and/or Clinical Breakpoints According to Fungal Species.</p> <table border="1"> <thead> <tr> <th align="center">Species</th> <th align="center">AMB</th> <th align="center">5FC</th> <th align="center">ANID</th> <th align="center">CASP</th> <th align="center">MICA</th> <th align="center">FLUC</th> <th align="center">ISAV</th> <th align="center">ITRA</th> <th align="center">POSA</th> <th align="center">VORI</th> </tr> </thead> <tbody> <tr> <td colspan="11">Yeasts</td> </tr> <tr> <td><i>C. albicans</i></td> <td>ECV</td> <td>-</td> <td>BP/ECV</td> <td>BP</td> <td>BP/ECV</td> <td>BP/ECV</td> <td>-</td> <td>-</td> <td>ECV</td> <td>BP/ECV</td> </tr> <tr> <td><i>C. dubliniensis</i></td> <td>ECV</td> <td>-</td> <td>ECV</td> <td>-</td> <td>ECV</td> <td>ECV</td> <td>-</td> <td>ECV</td> <td>ECV</td> <td>-</td> </tr> <tr> <td><i>C. glabrata</i></td> <td>ECV</td> <td>-</td> <td>BP/ECV</td> <td>BP</td> <td>BP/ECV</td> <td>BP/ECV</td> <td>-</td> <td>ECV</td> <td>ECV</td> <td>BP/ECV</td> </tr> <tr> <td><i>C. guilliermondii</i></td> <td>ECV</td> <td>-</td> <td>BP/ECV</td> <td>BP/ECV</td> <td>BP/ECV</td> <td>ECV</td> <td>-</td> <td>ECV</td> <td>ECV</td> <td>-</td> </tr> <tr> <td><i>C. kefyr</i></td> <td>ECV</td> <td>-</td> <td>ECV</td> <td>-</td> <td>ECV</td> <td>ECV</td> <td>-</td> <td>ECV</td> <td>ECV</td> <td>-</td> </tr> <tr> <td><i>C. krusei</i></td> <td>ECV</td> <td>-</td> <td>BP/ECV</td> <td>BP</td> <td>BP/ECV</td> <td>INT. 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RES.	-	ECV	ECV	BP/ECV	<i>C. lusitanae</i>	ECV	-	ECV	ECV	ECV	ECV	-	ECV	ECV	-	<i>C. parapsilosis*</i>	ECV	-	BP/ECV	BP	BP/ECV	BP/ECV	-	-	ECV	BP/ECV	<i>C. orthopsilosis</i>	-	-	ECV	-	ECV	ECV	-	-	ECV	-	<i>C. tropicalis</i>	ECV	-	BP/ECV	BP	BP/ECV	BP/ECV	-	ECV	ECV	BP/ECV	<i>C. neoformans VNI</i>	ECV	ECV	<i>ncr</i>	<i>ncr</i>	<i>ncr</i>	ECV	-	ECV	ECV	ECV	<i>C. gattii VGI</i>	ECV	ECV	<i>ncr</i>	<i>ncr</i>	<i>ncr</i>	ECV	-	ECV	-	ECV	<i>C. gattii VGII</i>	ECV	ECV	<i>ncr</i>	<i>ncr</i>	<i>ncr</i>	ECV	-	ECV	-	ECV	Molds											<i>A. flavus</i>	ECV	<i>ncr</i>	-	ECV	-	<i>ncr</i>	ECV	ECV	ECV	ECV	<i>A. fumigatus</i>	ECV	<i>ncr</i>	-	ECV	-	<i>ncr</i>	ECV	ECV	-	BP/ECV	<i>A. niger</i>	ECV	<i>ncr</i>	-	ECV	-	<i>ncr</i>	ECV	ECV	ECV	ECV	<i>A. terreus</i>	ECV	<i>ncr</i>	-	ECV	-	<i>ncr</i>	ECV	ECV	ECV	ECV	<i>A. versicolor</i>	ECV	<i>ncr</i>	-	-	-	<i>ncr</i>	ECV	-	-	-
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5.	<p>Antifungal Reporting WG Report (Audrey Schuetz and Vera Tesic) WG Roster: Audrey Schuetz, Vera Tesic (Co-Chairholders); Tanis Dingle, Kimberly Hanson, Stephanie Mitchell, Natasha Pettit; Thomas Walsh; Nathan Wiederhold, Matt Wikler; Nancy Zhao (Members)</p> <ul style="list-style-type: none"> • Dr. Schuetz reported that the WG has been split into two focused groups: Intrinsic Resistance and Body Site Restriction reporting <ul style="list-style-type: none"> – Intrinsic Resistance group (IR): Audrey Schuetz (lead), Tanis Dingle, Vera Tesic, Tom Walsh, Nathan Wiederhold, Nancy Zhao – Body site reporting group: Vera Tesic (lead), Kimberly Hanson, Stephanie Mitchell, Natasha Pettit, Audrey Schuetz, Matt Wikler • Intrinsic Resistance group report (Audrey Schuetz) <ul style="list-style-type: none"> – Dr. Schuetz reported that the group have met virtually reviewed definitions of IR definition for fungi. – Dr. Wiederhold has provided much data (<i>Cryptococcus</i>, <i>Rhodotorula</i>, <i>Trichosporon</i> for echinocandins) for use in the group’s discussion. – After discussion with the AST IR WG Chairholder, Dr. Barbara Zimmer, the WG agreed that there should be a strict definition for fungal IR and whether IR will be determined for a complex or for specific species. – The definition of IR in M100, Appendix B was reviewed which states: “<i>Intrinsic resistance is defined as inherent or innate (not acquired) antimicrobial resistance, which is reflected in wild-type antimicrobial patterns of all or almost all representatives of a species. Intrinsic resistance is so common that susceptibility testing is unnecessary....A small percentage (1 to 3%) may appear susceptible due to method variation, mutation, or low levels of resistance expression.</i>” The WG agreed that this definition also applies to fungi when they are tested by the CLSI reference method. – Raw data will be reviewed rather than incorporating published IR recommendations. – The WG will discuss how to present the information. Currently, the information is listed in footnotes to tables. 																																																																																																																																																																																																																																							

SUMMARY MINUTES	
#	Description
	<ul style="list-style-type: none"> - Dr. Schuetz suggested that a table similar to the one in M100 be added to the same document as where breakpoints/ECVs are found for the particular organism (eg, M60 for <i>Candida krusei</i>, M59 for <i>Cryptococcus</i>, M61 for <i>Aspergillus</i>). - The WG reviewed raw BMD data from original papers to determine if IR applies to any fungi. Data showed that approximately 5% of species with low MICs were intrinsically resistant. - WG Action Items for the January 2020 meeting: <ul style="list-style-type: none"> o Draft an IR table o Create rules to define IR for different fungal species/groups o Bring proposals for defining IR and inducible resistance • Body site reporting group (Vera Tesic) <ul style="list-style-type: none"> - Dr. Petit reported that assignments have been designated and data summaries and references will be submitted to Dr. Tesic. - The group will be meeting again by phone in September. - A full report will be provided at the January 2020 meeting.
6.	<p><u>M60 Revision (Beth Berkow and Adrian Zelazny)</u></p> <ul style="list-style-type: none"> • Major additions to the draft included: <ul style="list-style-type: none"> - QC strains and ranges for ibrexafungerp and rezafungin - Information for preparing stock antifungal solutions for ibrexafungerp and rezafungin - New recommendations for interpreting <i>C. parapsilosis</i> complex breakpoints (see below) • <i>C. parapsilosis</i> complex breakpoints were discussed. <ul style="list-style-type: none"> - The discussion began with a question to Dr. Alexander regarding which breakpoints to use when a yeast is identified by MALDI-TOF MS as one of the <i>C. parapsilosis</i> complex species (eg, <i>C. orthopsilosis</i>). It was questioned if the breakpoints apply to <i>C. orthopsilosis</i> and <i>C. metapsilosis</i> or just to <i>C. parapsilosis</i> or the complex. - Dr. Lockhart stated that the data for the breakpoints was primarily derived from <i>C. parapsilosis</i> complex of which most were <i>C. parapsilosis</i> isolates and that resistance for the non-<i>C. parapsilosis</i> species has not been observed. He noted that the addition of a comment to the current edition was discussed but the comment was never added. - Dr. Dufresne noted if a laboratory has a high level of <i>C. orthopsilosis</i> and/or <i>C. metapsilosis</i>, it may be dangerous to use the breakpoint because ECVs are not the same. There is a 2-dilution difference for anidulafungin and micafungin with <i>C. orthopsilosis</i> being more susceptible. - Dr. Wiederhold agreed that the breakpoints were set for the complex. Both he and Dr. Lockhart stated that when the exact species is not known (identified as the complex) or it is known that the isolate is <i>C. parapsilosis</i>, the breakpoints can be reported. When an isolate is definitively identified as <i>C. orthopsilosis</i> or <i>C. metapsilosis</i>, the report should state that there is no established breakpoint. - Dr. Dufresne stated that this plan works for areas where the prevalence of non-<i>C. parapsilosis</i> species is low but there may be problems in areas where the prevalence is high (eg, India, 40% <i>C. orthopsilosis</i>). - Dr. Berkow and Dr. Zelazny stated that they tried to provide guidance on the issue in the M60 draft by including a comment (eg, <i>For C. parapsilosis complex, when no further species determination has been performed and prevalence of the cryptic species (C. orthopsilosis or C. metapsilosis) is low, C. parapsilosis breakpoints may be applied. However, if further species determination identifies one of the cryptic species within the complex, then C. parapsilosis breakpoints should not be applied and it should instead be indicated that no breakpoints exist for interpretation</i>).

SUMMARY MINUTES	
#	Description
	<ul style="list-style-type: none"> - Dr. Alexander noted that refraining from reporting breakpoints for cryptic species may penalize those laboratories that are able to identify the specific species in the complex. - Dr. Zhang reported that at his institution, the cryptic species are seen and identified by MALDI-TOF MS. He stated that they still use the <i>C. parapsilosis</i> breakpoints, but he doesn't feel comfortable. He stated that knowing the ECVs would be useful. - Dr. Walsh noted that there is a controversy regarding the proper echinocandin dosages for <i>C. parapsilosis</i>. There are cases where <i>C. parapsilosis</i> has elevated MICs are not responding to standard doses. He suggested that those isolates that are being called <i>C. parapsilosis</i> and have higher MICs might be cryptic species and that we should be cautious about using the breakpoints for those species. - Dr. Lockhart suggested that the same issue should be discussed regarding <i>C. albicans</i> and <i>C. dubliniensis</i>. He questioned if the breakpoints for <i>C. albicans</i> should be reported when an isolate is identified as <i>C. dubliniensis</i>. - Dr. Fuller commented that standards have already been established for species complexes and not individual species. Rules around exceptions are needed. He stated that breakpoints need to be set for isolates at the species level. More testing and guidance are needed for how to proceed if an isolate is identified as a species within a complex for which the breakpoint has been set. - Dr. Procop questioned how often breakpoints are set for a complex and it is later discovered that the data set was contaminated with cryptic species. - Dr. Dufresne stated that he believes that cryptic species were less than 5% of the total isolates tested. - Dr. Procop noted that if it is believed that the background contamination is less than 5%, that we can be confident in the breakpoint. If the percentage is found to be higher, then the breakpoints would have to be reassessed. - Dr. Zhang suggested that the previous pool of isolates should be revisited to determine if the contamination is less than 5%. - Dr. Alexander stated that the data and isolates are likely to no longer be available. She commented that it is likely that there may never be enough data to set breakpoints for the cryptic species. Therefore, the ECVs need to be approved and published as soon as possible. - Dr. Procop suggested working towards some general rule as to the percentage of cryptic species will be allowed in a data set when setting breakpoints. - Dr. Alexander agreed that we need to be consistent when making these rules. - It was agreed that creating rules around cryptic species will be discussed during the January 2020 meeting. - The SC members agreed that in M60, <i>C. parapsilosis</i> should be designated as the species complex and the comment/footnote will be added to provide guidance when a non-<i>C. parapsilosis</i> species is identified. <ul style="list-style-type: none"> • 48 hr. QC ranges for ibrexafungerp <ul style="list-style-type: none"> - Dr. Zelazny noted that during the January 2019 meeting, a request was made for data from an additional laboratory was needed for <i>C. parapsilosis</i> at 48 hrs. He suggested that a NOTE be added regarding the absence of 48 hr. ranges in the table. - Dr. Zelazny also noted that references are needed for the new drug QC ranges. - Ms. Hackenbrack stated that generally for bacterial breakpoints are not provided, but decisions are based on data presented during subcommittee meetings. - Dr. Alexander noted that the same can be done for the antifungal documents. The approvals are noted in the document as to the date of the meeting where they were approved.
7.	M61 Revision (Jeff Fuller and Nathan Wiederhold)

SUMMARY MINUTES	
#	Description
	<ul style="list-style-type: none"> • The major changes to M61 include: <ul style="list-style-type: none"> – Addition of a breakpoint table (Table 1) for <i>Aspergillus fumigatus</i> sensu stricto. – Separate MIC QC tables for 24 and 48 hr. (and potentially for longer) incubation times and reference strains, when available. • Issues with <i>A. fumigatus</i> breakpoints were discussed. <ul style="list-style-type: none"> – Dr. Fuller questioned if there should be a comment added for <i>A. fumigatus</i> sensu stricto stating that most of the data used to set the breakpoint were from sequence verified <i>A. fumigatus</i> rather than for the complex. He noted that voriconazole resistance within the complex has been observed. – Dr. Zelazny noted that resistance within the complex is variable and breakpoints should be specific to <i>A. fumigatus</i> sensu stricto. – It was questioned if calling out separate species is practical as there are few laboratories that are using MALDI-TOF MS for mold identification. – Dr. Schuetz stated that few laboratories are using MALDI-TOF MS to identify molds and are sending the isolate with an identification to a referral laboratory for susceptibility testing. Referral laboratories generally do not confirm the identification but will test based on the identification sent by the initial laboratory. Adding sensu stricto will be concerning for laboratories that don't really know if it is a sensu stricto. – Dr. Fuller agreed that guidance on the concept needs to be added to the document. – Dr. Zelazny questioned why a laboratory would submit an isolate for susceptibility testing without requesting confirmation of the identification. – Dr. Fuller recalled that there was a discussion of developing a rationale document for the breakpoint. The explanation could be included in the rationale document. • 48 hr. QC range table <ul style="list-style-type: none"> – Dr. Fuller stated that a new table was created for those QC organisms needing 48 hr. incubations. The 24 hr. table will primarily for <i>C. albicans</i> and <i>C. krusei</i> and a few references values. The 48 hr. table will encompass what is currently published with corrections. – Dr. Fuller stated that some of the references currently in the tables are not appropriate for the information in the tables. He and Dr. Wiederhold will review the references and determine if references need to be added or removed. – Dr. Fuller questioned if a third table is needed for QC isolates and ranges that need greater than 48 hrs.
8.	<p><u>Taxonomy project update (Gary Procop)</u></p> <ul style="list-style-type: none"> • Dr. Procop provided an update the potential taxonomy document discussed during the January meeting. <ul style="list-style-type: none"> – The original project proposal was not endorsed by the Expert Panel on Microbiology due to the proposal to include taxonomists on the committee and because it was believed that other organizations provide the same information. – Dr. Tom Thomson and Dr. Jean Patel, Chairholder and Vice-Chairholder of the Expert Panel, respectively, have revised the project proposal that focuses on clinically relevant bacteria and fungi that are generated by automated identification systems. It would provide guidance on what organism names to report when unfamiliar organism names are generated by automated systems (eg, MALDI-TOF MS). – The project proposal has been endorsed by the Expert Panel on Microbiology and will be presented to Consensus Council for approval during the September 2019 Committees Week meeting. – If the proposal is not approved, the SC will move forward with adding an appendix to the current documents.

SUMMARY MINUTES	
#	Description
9.	<p>Other business (Gary Procop)</p> <ul style="list-style-type: none"> The AST Outreach WG is looking for a volunteer to join the WG. Activities will include: <ul style="list-style-type: none"> Propose antifungal issues to be presented in the quarterly newsletter. Assist in developing and presentation workshops and webinars. Author short articles on Antifungal topics.
10.	<p>Dr. Procop thanked the participants for their time and efforts.</p> <ul style="list-style-type: none"> The next meeting of the Antifungal Subcommittee is scheduled for Saturday, 25 January 2020 in Tempe, Arizona. Agenda requests are due for submission by 11 December 2019. The Web conference was adjourned at 3:30 PM Eastern (US) time.

ACTION ITEMS			
#	Description	Responsible	Status
1.	<ul style="list-style-type: none"> Draft an intrinsic resistance table Create rules to define IR for different fungal species/groups Bring proposals for defining IR and inducible resistance 	Intrinsic resistance group	
2.	Address issues regarding ECVs and breakpoints derived from species complex data (eg, <i>C. parapsilosis</i> complex and <i>Aspergillus fumigatus</i>).	M59, M60, and M61 WG	
3.	Submit interest in serving as the Antifungal SC liaison to the AST Outreach WG.	Any interested volunteer	
4.	M61: Review references and add new or replace old references.	Dr. Fuller Dr. Wiederhold	

Respectfully submitted,
 Marcy L. Hackenbrack, MCM, M(ASCP)
 Camille Hamula, PhD, D(ABMM)