Case Study Lab Report for Labs 12 and 13: 
The Enterobacteriaceae and Pseudomonas

The concept behind the case studies presented in Lab 12 used to illustrate the Enterobacteriaceae and Pseudomonas is for you and your lab partners as a group to:

1. First come up with a valid diagnosis of the type of infectious disease seen in your case study and then identify the bacterium causing that infectious disease, and

2. Support your group’s diagnose based on:
   a. Any relevant facts in the patient’s history. (A reliable on-line source will be used to support this.)
   b. The patient’s signs and symptoms. (A reliable on-line source will be used to support this.)
   c. Each of the individual lab tests given in your case study.
   d. All microbiological lab tests you performed as part of the project.

The due date for this report can be found on the class calendar. Remember, you are working as a group to solve a problem. Your grade for this lab is based on the completeness of your report and written evidence of the critical thinking process that went into making and supporting your diagnosis, therefore, it is critical that all members of the group participate, question any conclusions being made by the group, and contribute to the report. Remember, you are trying to convince your instructor that you understand how the diagnosis was made by supporting that diagnosis with data. Your group will work together to write the report and submit one hard copy of that report for your group. Part of your grade will be based on evaluation of your work by your team members.

Be sure to handle all the bacterial cultures you are using in lab today as if they are pathogens! Be sure to wash and sanitize your hands well at the completion of today’s lab.

Also, make sure you observe several MacConkey agar plates and the Cetrimide agar plate used by others in your lab so that you can answer practical questions from Lab 12 and Lab 13. The Performance Objectives for Lab 13 tell you what you are expected to be able to do on the practical.
Case Study Lab Report for Labs 12 and 13:
The Enterobacteriaceae and Pseudomonas

Your Name:

Others in your group:

Unknown number (1-8):

Lab section:

Date:

Each member of the group must:

1. Print a copy of each of the two rubrics from the links above.

2. Print and fill out a copy of the Team Member Evaluation Form from the link above.

3. Staple them together and hand them in to me the day your Lab 12 Case Study Lab Report is due.

Case Study #1A from Lab 12

A 26 year old female presents to her doctor complaining of 2 days of increased urinary frequency, dysuria, and sensation of incomplete voiding. Her abdominal exam indicates mild suprapubic tenderness. Her blood pressure is normal and she does not have fever, chills, costovertebral angle (CVA) tenderness, or vaginal discharge. She reports that she became sexually active with her new boyfriend one month ago. She and her boyfriend have sexual intercourse 3-4 times a week. She is using a combination of a diaphragm and spermicide for contraception. She is otherwise healthy. A microscopic examination of her centrifuged urine shows 9 white blood cells and 15 bacteria per high-power microscopic field. A urine dipstick shows a positive leukocyte esterase test and a positive nitrite test.

Assume that your unknown is from the urine of this patient.
Case Study #1B from Lab 12

A 90 year old woman resides at an area nursing home. She shows signs of mild dementia, and because of severe arthritis and requiring a walker for ambulation, sits in a chair most of the day. She has not used any form of estrogen in at least 30 years. She also has a history of 4-5 confirmed urinary tract infections per year. This morning, her caregiver is unable to coax the patient out of her bed. She seems confused and disoriented. Vital signs reveal tachycardia in the 120’s, respirations at 24/min, and a blood pressure of 78/49. She is immediately taken to an ER for evaluation. A CT of the abdomen and a chest x-ray appear normal. She has a WBC count of 2300/πL with a marked left shift. She continues to exhibits marked confusion compared to her baseline and is exhibiting anxiety. Urine and blood samples are taken and sent for culture and sensitivity.

Assume your unknown is from both a urine sample and a blood sample.

Case Study #1C from Lab 12

A 79 year old man living in a nursing home has COPD, a lifetime history of heavy smoking, and hypertension. His caregivers note that he is exhibiting rigor, has a temperature of 103°F, and lacks his normal alertness. Vital signs include a blood pressure is 165/90, a pulse of 128 beats per minute, a respiratory rate of 32 breaths per minute, and a pulse oximetry on room air of 80%. He is transferred to an acute care facility where a chest X-ray reveals a right lower lobe infiltrate and his white blood cell count is 18,000/πL with a marked left shift. He has thick, foul-smelling yellow-green sputum.

Assume you unknown is from the sputum sample

Did you have Case Study 1A, 1B, or 1C? ______

1. Patient's history and predisposing factors

Read the case study. Explain how any relevant parts of the patient's history contributed to your diagnosis of the type of infectious disease that is present here. You are urged to use the computers in lab to search reliable medically oriented Internet sources to support this. Reliable sources you might consider are Medscape (http://emedicine.medscape.com/infectious_diseases) and The Centers for Disease Control and Prevention (CDC) at http://www.cdc.gov/. Cite any sources you use at the end of this Patient's History section in APA style (http://www.apastyle.org/).

The patient's history should suggest a general type of infectious disease that is present, such as a urinary tract infection, a wound infection, gastroenteritis, pharyngitis, pneumonia, septicemia, etc. Do not look up the bacterium you eventually identify as the cause of this infectious disease. You don't know the causative bacterium at this point. You need to determine the general type of infection to determine what microbiological tests to perform in order to identify the bacterium causing the infection. Search at least one medically-oriented reference article from a reliable site such as Medscape and use this article to support your diagnosis of the type of infectious disease seen here. Don't forget to cite any sources you used in APA style directly under this Patient's History and Patient's Symptoms sections of this Lab Report.
2. Patient’s signs and symptoms

Read the case study. Explain how the patient’s signs and symptoms contributed to your diagnosis of the type of infectious disease that is present here. You are urged to use the computers in lab to search reliable Internet sources to support this. Reliable sources you might consider are Medscape (http://emedicine.medscape.com/infectious_diseases) and the Centers for Disease Control and Prevention (CDC) at http://www.cdc.gov/. Also see appendix F (SIRS and Sepsis) in your lab manual for an indication of whether or not the patient has SIRS. Cite any sources you use at the end of this Patient's History section in APA style (http://www.apastyle.org/).

The patient’s signs and symptoms should suggest a general type of infectious disease that is present, such as a urinary tract infection, a wound infection, gastroenteritis, strep throat, pneumonia, septicemia, etc. Do not look up the bacterium you eventually identify as the cause of this infectious disease. You don't know the causative bacterium at this point. You need to determine the general type of infectious disease present in order to determine what microbiological tests to perform to identify the bacterium causing the infection. Search at least one medically-oriented reference article from a reliable site such as Medscape and use this article to support your diagnosis the type of infectious disease seen here. Don't forget to cite any sources you used in APA style under this Patient’s History and Patient’s Symptoms sections of this Lab Report.
3. Vocabulary list for medical terms used in the case study under signs and symptoms

List and define any medical terms used in your case study that describe the patient's signs and symptoms that the average person not in the medical profession might not know.
4. Results of laboratory test given in the case study

List each lab test given and explain how the results of that test helps to contribute to your diagnosis. Refer to appendix C (Complete Blood Count), appendix D (Urinalysis), and appendix F (SIRS and Sepsis) in your lab manual.

5. Microbiological lab tests you performed in Lab 12

a. Gram stain

Give the Gram reaction (Gram-positive or Gram negative and how you reached this conclusion) and the shape and arrangement of the unknown you were given. State how these Gram stain results contributed to your decision of what microbiological test to perform next. The Gram stain is discussed in Lab 6.

b. Oxidase test

Give the results of the oxidase test (positive or negative) you performed on the unknown you were given, and how you reached this conclusion. State how these oxidase results contributed to your decision as to what microbiological media to use next. The oxidase test is discussed in Lab 12 under C. Lab Tests Used in Today’s Lab.
c. Maconkey agar (if used)

Describe the results of the MacConkey agar plate you inoculated with the unknown you were given. **State how this contributed to narrowing down your identification of the bacterium causing the infectious disease.** MacConkey agar is discussed in Lab 12 under C. Lab Tests Used in Today's Lab.

c. Cetrimide agar (if used)

Describe the results of the Cetrimide agar plate you inoculated with the unknown you were given. **State how this contributed to your identification of the bacterium causing the infectious disease.** Cetrimide agar is discussed in Lab 12 under C. Lab Tests Used in Today's Lab.
d. EnteroPluri-Test. 
Using your EnteroPluri-Test, identify the unknown you were given. The EnteroPluri-Test and its use are described in Lab 12 under C. Lab Tests Used in Today’s Lab.

1. In the table below, put a (+) or a (-) in the Result row for each test.
2. Add up the value of each positive test in a group and put that number in the code for each group.
3. The 5 digit number is the CODICE number. Look that number up in the Codebook and identify your unknown.

<table>
<thead>
<tr>
<th>Test</th>
<th>Group 1</th>
<th>Group 2</th>
<th>Group 3</th>
<th>Group 4</th>
<th>Group 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>Glucose</td>
<td>Gas</td>
<td>Lysine</td>
<td>Ornithine</td>
<td>H/S</td>
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<tr>
<td>Value</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>2</td>
</tr>
</tbody>
</table>

CODICE NUMBER: Identification:

Genus and species of bacterium: ________________________________

Final diagnosis:

What infectious disease does the patient have?

What is the genus and species of the bacterium causing this infectious disease?
Case Study #2

After receiving a baby chicken for Easter, a 7 year old boy is taken to the emergency room with symptoms of vomiting, nausea, non-bloody diarrhea, abdominal cramps, and a temperature of 100°F. A complete blood count (CBC) shows the WBC count to be within the normal reference range.

1. Patient's history and predisposing factors

Read the case study. Explain how any relevant parts of the patient's history contributed to your diagnosis of the type of infectious disease that is present here. You are urged to use the computers in lab to search reliable medically oriented Internet sources to support this. Reliable sources you might consider are Medscape (http://emedicine.medscape.com/infectious_diseases) and The Centers for Disease Control and Prevention (CDC) at http://www.cdc.gov/. Cite any sources you use at the end of this Patient's History section in APA style (http://www.apastyle.org/).

The patient's history should suggest a general type of infectious disease that is present, such as a urinary tract infection, a wound infection, gastroenteritis, pharyngitis, pneumonia, septicemia, etc. You need to determine the general type of infection to determine what microbiological tests to perform in order to identify the bacterium causing the infection. Search at least one medically-oriented reference article from a reliable site such as Medscape and use this article to support your diagnosis the type of infectious disease seen here. Don't forget to cite any sources you used in APA style directly under this Patient's History and Patient's Symptoms sections of this Lab Report.
2. Patient’s signs and symptoms

Read the case study. Explain how the patient's signs and symptoms contributed to your diagnosis of the type of infectious disease that is present here. You are urged to use the computers in lab to search reliable Internet sources to support this. Reliable sources you might consider are Medscape (http://emedicine.medscape.com/infectious_diseases) and the Centers for Disease Control and Prevention (CDC) at http://www.cdc.gov/. Cite any sources you use at the end of this Patient’s History section in APA style (http://www.apastyle.org/).

The patient’s signs and symptoms should suggest a general type of infectious disease that is present, such as a urinary tract infection, a wound infection, gastroenteritis, strep throat, pneumonia, septicemia, etc. You need to determine the general type of infectious disease present in order to determine what microbiological tests to perform to identify the bacterium causing the infection. Search at least one medically-oriented reference article from a reliable site such as Medscape and use this article to support your diagnosis the type of infectious disease seen here. Don't forget to cite any sources you used in APA style under this Patient's History and Patient's Symptoms sections of this Lab Report.

3. Vocabulary list for medical terms used in the case study under signs and symptoms

List and define any medical terms used in your case study that describe the patient's signs and symptoms that the average person not in the medical profession might not know.
4. Results of laboratory test given in the case study

List each lab test given and explain how the results of that test helps to contribute to your diagnosis. Refer to appendix C (Complete Blood Count) in your lab manual as well as your source paper used above.

5. Microbiological lab tests you performed in Lab 12

a. XLD
Describe the results of the XLD agar plate you inoculated with the sample from the patient. **State how this contributed to your to your identification of the bacterium causing this infectious disease.** XLD agar is discussed in Lab 12 under C. Lab Tests Used in Today’s Lab.
b. EnteroPluri-Test.

Using the EnteroPluri-Test inoculated with a colony from the MacConkey agar described above, identify the bacterium causing the infection. The EnteroPluri-Test and its use are described in Lab 12 under C. Lab Tests Used in Today's Lab.

1. In the table below, put a (+) or a (-) in the Result row for each test.
2. Add up the value of each positive test in a group and put that number in the code for each group.
3. The 5 digit number is the CODICE number. Look that number up in the Codebook and identify your unknown.

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</tbody>
</table>

CODICE NUMBER: Identification:

Genus of the bacterium:  

Final diagnosis:

What infectious disease does the patient have?

What is the genus of the bacterium causing this infectious disease?