

Healthcare Technology Management

#IamHTM

Middle
School

High
School

College
and
Beyond



Notes:

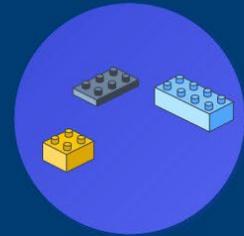
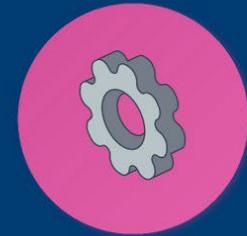
- These presentations were created to be quick and to the point. Each presentation should not be longer than 15 minutes of speaking time to not lose the audience's attention.
- Each presentation is generic. You can customize each presentation by providing stories, information and examples that are personal to you, your employer, and your geographical area.
- The Middle School Presentation is very basic and targeted for students up to the 5th/6th Grade. For 7th and 8th graders, the High School presentation is more age appropriate.



Notes:

- This page should be used to introduce yourself. Once you have done that, you could say: “Today we are going to talk about Healthcare Technology Management and what an exciting career it is!”

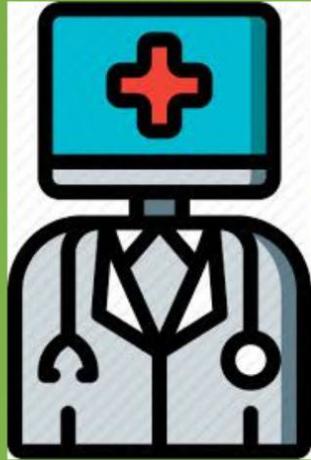
Ever heard of Healthcare Technology Management?



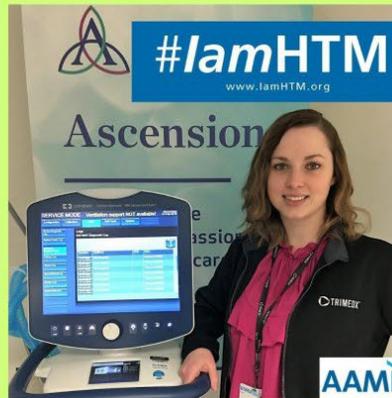
Notes:

- This is a great slide to solicit ideas from the audience about what they think HTM is by asking this question and getting them involved. Break down the title if needed to help them guess.
- You can give a general example about the field's work such as being called in during the middle of a surgery case to help get the equipment going. Just remember to keep the conversation light and easy to understand for this age group.

We are the hospital
machine doctors and
technology experts!



Meet Ms. Angela:

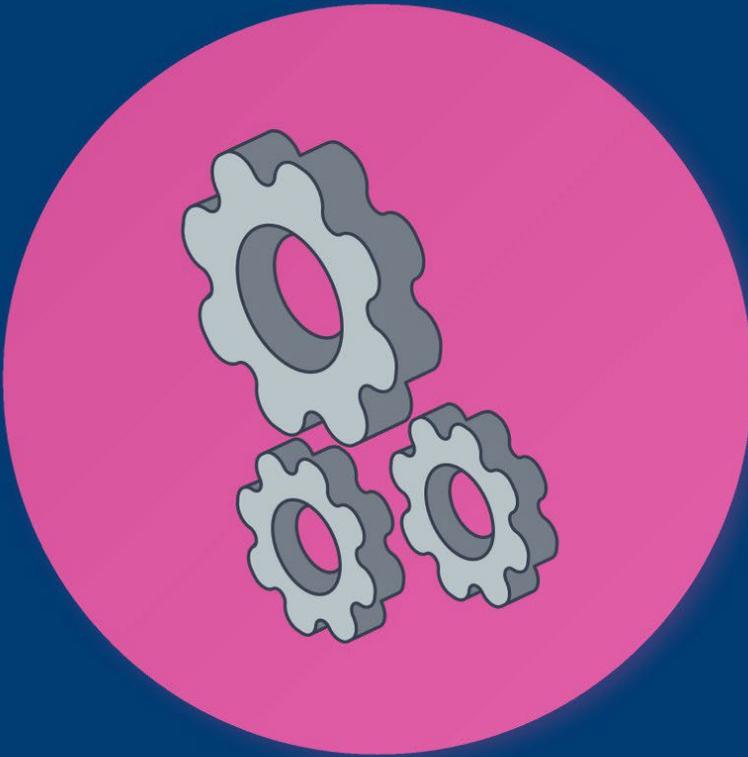


"I see the medical equipment as being like a patient. When it is not working it is my job to nurse it back to health. This job is fun!"

Notes:

- Make the analogy that much like how people get sick, the equipment also breaks down over time and needs to be fixed/nursed back to health.
- Depending how young the age group is, you can relate this to changing batteries in toys, or, if the group is a bit older, you can relate this to fixing a car. Cars need oil and filter changes to keep running well and the medical equipment also needs that same kind of work.

We work in HOSPITALS !

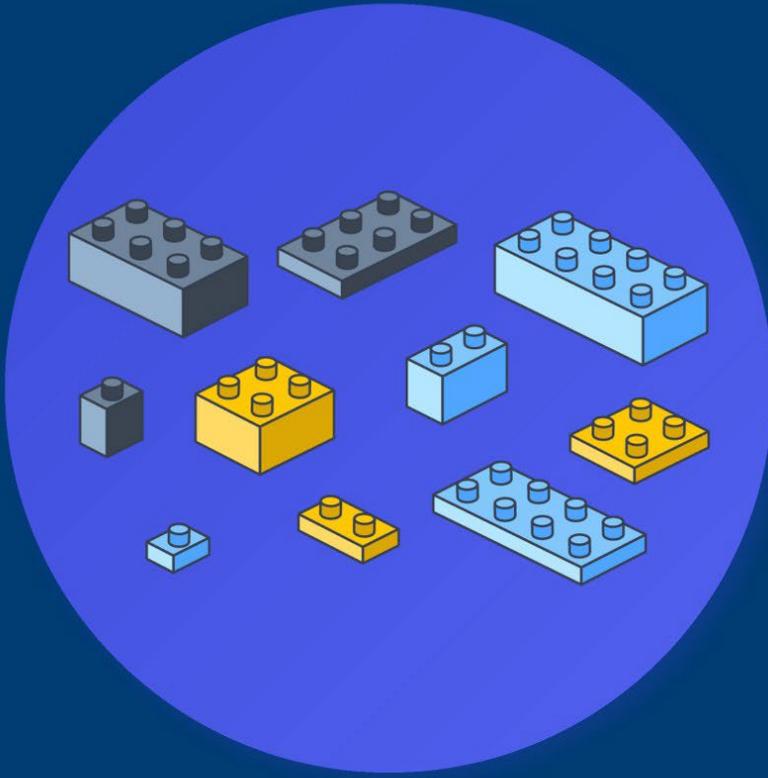


Some days you get to wear hard hats and scrubs!

Notes:

- Reinforce that we have one of the coolest jobs in the hospital. Explain that HTM Professionals do work everywhere in the hospital.
- Ask the audience to name different areas of the hospital and give an example of what types of equipment we support in that area. Remember, keep it simple.
- Mention that we help design new hospital buildings and get to wear different outfits depending upon where we work in the hospital.

We make hospitals work behind the scenes!



Notes:

- Give an example of a project you worked on that a child would find neat. (e.g. Working with Robotics, being involved in a construction project, picking out new equipment, installing new equipment, emergency situations, etc.).
- Take the time to explain the video and mention how the HTM professional comes to the rescue – like a superhero! Make sure to reiterate that this is what HTM professionals do all day long: solve problems that help patients.

Helping
People



DO YOU
LIKE...

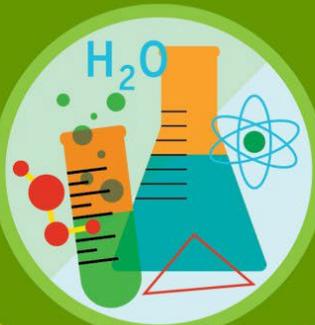
Problem
Solving



Puzzles



Science



Fixing Things



So, what do Healthcare Technology Managers Do?



Notes:

- Ask this question to the audience and solicit answers before moving forward.

Work with cool
equipment in hospitals
that help people get
better!



Notes:

- Give some age appropriate examples that the audience can relate to. Keep your tone upbeat and excited!

Help nurses and
doctors solve problems
to ensure hospitals and
patients are safer!



Notes:

- Give some age appropriate and simple examples that the audience can relate to.
- Or, tell a story about a meaningful interaction with a doctor, radiologist, surgeon, nurse or other staff person in the healthcare environment. Example: *We worked with nursing to pick out a new fleet of patient beds. These beds are safer and have technology that help prevent patients from falling out of them. Patients get hurt from falling and because we helped with this project, less patients fall and get hurt. This allows them to go home to their families sooner.*

Have tons of fun
because every day is
different!



Notes:

- Reiterate how much fun and exciting the job is. Share with the audience why you love what you do! Remember, excitement is contagious.



Notes:

- Have and know the job salary ranges for your area, in case you are asked. Only talk about salaries, if you are asked.
- Make sure the audience knows there is a difference in educational requirements for a BMET vs the Clinical Engineer.

BIOMEDICAL EQUIPMENT TECHNICIAN (BMET)



- Makes sure medical equipment is safe for patients
- Fixes medical equipment when its broken
- Trains doctors and nurses on how to use medical equipment
- Learns IT skills
- Works with cutting edge technology such as Virtual Reality and Robots



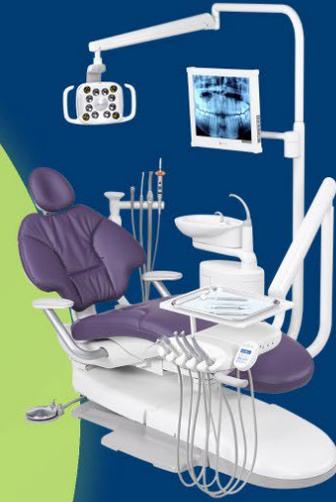
SO, HOW DO
I BECOME A
BMET?

Notes:

- Make sure to stress that every day is different, and you learn something new every day.
- BMETs are the subject matter experts for the most cutting-edge technology in the hospital.

SO, HOW DO I BECOME A BMET?

- Consider a technical high school
- Gain skills in electronics, technology, and IT
- Volunteer at a local hospital
- Study Engineering Technology at a community college or university



Notes:

- Know what technical/STEM schools (high schools and colleges) are local to the students.
- Know if the organization you work for has volunteer opportunities. Also, know all the local hospital's in the area.

Clinical Engineer

- Helps decide what new equipment the hospital needs to buy
- Investigates problems and finds solutions through technology
- Teaches nurses and doctors about new technology



How Do I
Become a
Clinical
Engineer?

Notes:

- Reiterate that HTM Professionals solve problems to improve patient care and Clinical Engineers are always looking for new solutions to fix healthcare challenges.

How Do I Become a Clinical Engineer?

- Consider a STEM high school
- Gain skills in science and technology
- Volunteer at a local hospital
- Obtain a 4 year college degree in engineering



Notes:

- Know what technical/STEM schools (high schools and colleges) are local to the students.
- Know if the organization you work for has volunteer opportunities. Also, know all the local hospital's in the area.
- Make sure you are clear that, in most cases, Clinical Engineers need an engineering degree.

To learn more
visit:

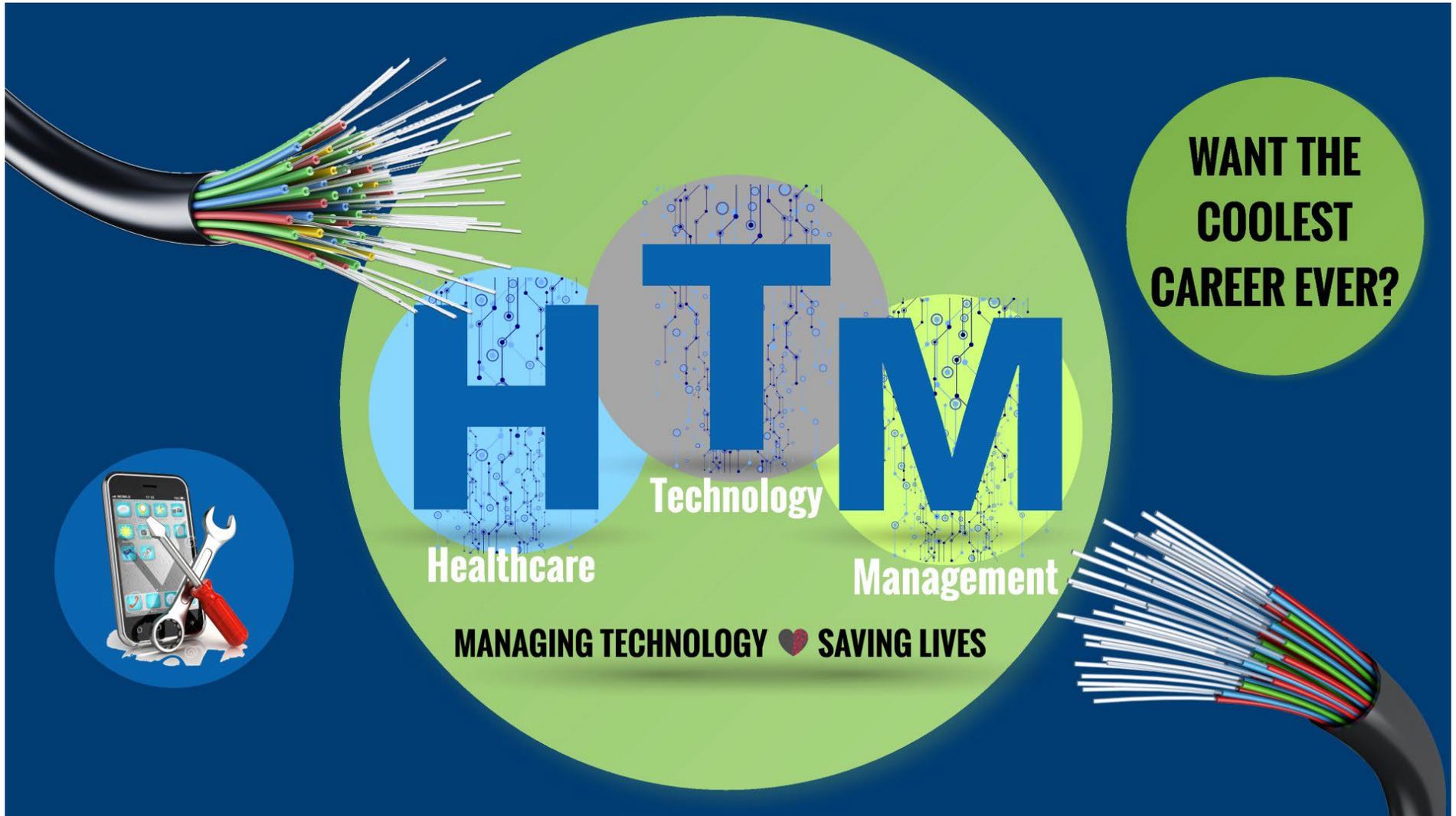
www.lamHTM.org



Notes:

- Emphasize that additional information about the field can be found at www.lamHTM.org.

High School Presentation



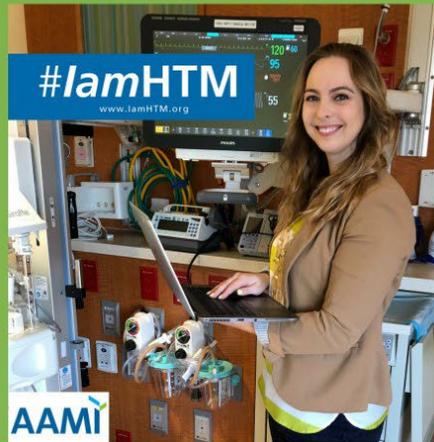
Notes:

- This presentation does not contain specific information about salaries. This information can be found in the adult (College and Beyond) presentation.

Healthcare

Technology

Management



"Much like the backstage personnel at a rock concert, healthcare technology managers ensure medical equipment is ready for showtime: when our clinicians need it for our patients. I'm proud that all the planning, implementing, and innovation I develop creates a safer, healing environment for our patients."

What do
HTM
Professionals
Do?

Career
Info

Working
Environment

Why
HTM?

For More
Info

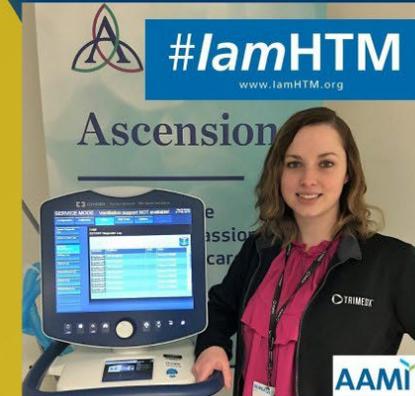
Notes:

- Make the correlation between how HTM is like being the backstage personnel at a rock concert to the audience and explain why.
- Ask the students if they have ever been to a hospital or doctor's office and if they have ever thought about how all the medical equipment got where it is (who helped pick it out, who installed it, who tested it to make sure it works, how there conveniently is an electrical outlet right next to where the device was placed?)



What do HTM Professionals Do?

- Work with doctors and nurses to improve patient care and make hospitals safer
- Help hospitals select new medical equipment
- Fix medical equipment when it breaks
- Train others how to use the equipment
- Solve healthcare problems and manage medical equipment projects
- Partner with IT to ensure devices send data to other systems
- Investigate medical device incidents
- Help design new hospital buildings and care areas



“As a clinical engineer, I see the medical equipment as being like a patient. When healthcare technology is sick or down, my job is to nurse it back to health. This is a field that is both rewarding and fun!”

Notes:

- Make it personal and tell a story. Give some examples of projects you have been involved with.
- Talk about how much HTM professionals work with IT.
- Tell the audience that HTM Professionals basically make healthcare work behind the scenes.
- Mention the quote about how HTM professionals nurse the equipment back to health when its sick. Make a strong correlation for the audience.

Why HTM?

- There are plenty of jobs. The need for HTM professionals is high.
- The pay and benefits are good.
- The Medical Device industry is currently valued at \$173 billion in the US and is projected to grow to \$208 billion by 2023 causing the need for HTM professionals to also grow.
- Job satisfaction is high. More than 80% surveyed say they are happy with their jobs, pay, and benefits.
- Job security is high: There's strong demand for HTM professionals around the world.
- HTM professionals are needed in every hospital so you can work anywhere!

BMET



Clinical Engineer



HTM Manager



Notes:

- This slide is a great place to tell the audience how your got into the field and why you love it so much.
- After telling your personal story, review the information on the slide.
- Be sure to reinforce that students WILL get a job out of school.
- Mention that there are HTM professionals in every hospital. This gives students the opportunity to stay in the town they grew up in or move anywhere in the country.
- Also mention that HTM professionals can be employed directly by the hospital, by a third-party repair organization or by medical device manufacturers. HTM professionals can obtain a job where they travel all over the country or a job where they go to the same hospital every day. The job options are endless.

Biomedical Equipment Technician (BMET)



- Troubleshoots and performs maintenance on medical equipment
- Manages multimillion dollar pieces of medical equipment and systems
- Sets up and configures new equipment
- Works with IT to ensure equipment sends data where it needs to go
- Provides support and training to clinicians
- Can become specialized in high level equipment



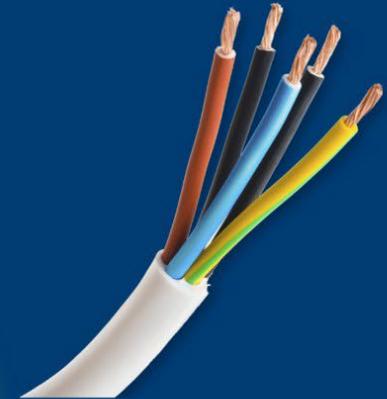
How Do I
Become a
BMET?

Notes:

- Talk through the slide and give short examples to better explain each bullet.
- Inform the audience that they will continue to learn and receive training on the job once they are hired. Learning does not end when school ends since medical technology is constantly changing. HTM professionals learn something new every day.
- As technology evolves so does the job of the BMET. HTM professionals will never be bored since the job is always changing.

How Do I Become a BMET?

- Learn as much as you can about technology, electronics, and the human body!
- Consider a trade in electronics or IT.
- Join the military - they have a BMET school!
- Study electronics or biomedical technology at a university or community college.
- Volunteer in a HTM (Biomed) Department at your local hospital.



Notes:

- Stress the importance of volunteering in an HTM department to start out.
- Explain that some hospitals call their HTM Departments: Clinical Engineering, Biomedical Engineering or Biomed when they call looking to volunteer.
- Have a list of local schools that offer BMET schooling available.

Clinical Engineer

- Assesses need for new equipment
- Manages medical equipment projects
- Looks for ways to make hospital safer by utilizing technology differently
- Investigates medical device failures
- Helps design new hospital care units
- Provides technical support and training to doctors and nurses



How Do I
Become a
Clinical
Engineer?

Notes:

- Give short examples to better explain each bullet point.
- Reiterate that you will continue to learn for the rest of your career. As hospitals acquire new technology, there will always be challenges to solve (eq: connecting a device to an existing system, cybersecurity, etc.).

How Do I Become a Clinical Engineer?

- Learn as much as you can about technology, electronics, biology, chemistry and anatomy and physiology!
- Volunteer at a local hospital's HTM (Biomed) Department.
- Obtain a 4 year college degree in engineering or engineering technology from an ABET accredited program.



Notes:

- Stress the importance of volunteering in the HTM department as a start.
- Explain that some hospitals call their HTM Departments: Clinical Engineering, Biomedical Engineering or Biomed when they call looking to volunteer.
- Make sure to explain the different educational requirements for the Clinical Engineer vs the BMET. Clinical Engineers have an Engineering degree.

HTM Manager/Director

- Works closely with hospital senior leadership to solve complex challenges involving technology
- Ensures the department meets all regulatory requirements
- Oversees large medical equipment projects
- Manages BMETs and Clinical Engineers
- Assesses data to continually improve the hospital
- Helps to access and mitigate medical device cyber security risks



Notes:

- This slide is meant to show students that the HTM career has an upward trajectory and growth potential.
- BMETs and Clinical Engineers can work their way up to run their own HTM Department.
- Continue to stress that HTM professionals work closely with hospital senior leadership/executives, IT, and clinical staff. (Avoid saying “c-suite” to this age group – high schoolers do not know what that means and often do not view hospitals as businesses)
- You can mention that some HTM professionals become VPs.



Working Environment

HTM professionals work with all types of technology—from blood pressure cuffs to MRIs! They even work with virtual reality (VR), robotic, and IT Systems!

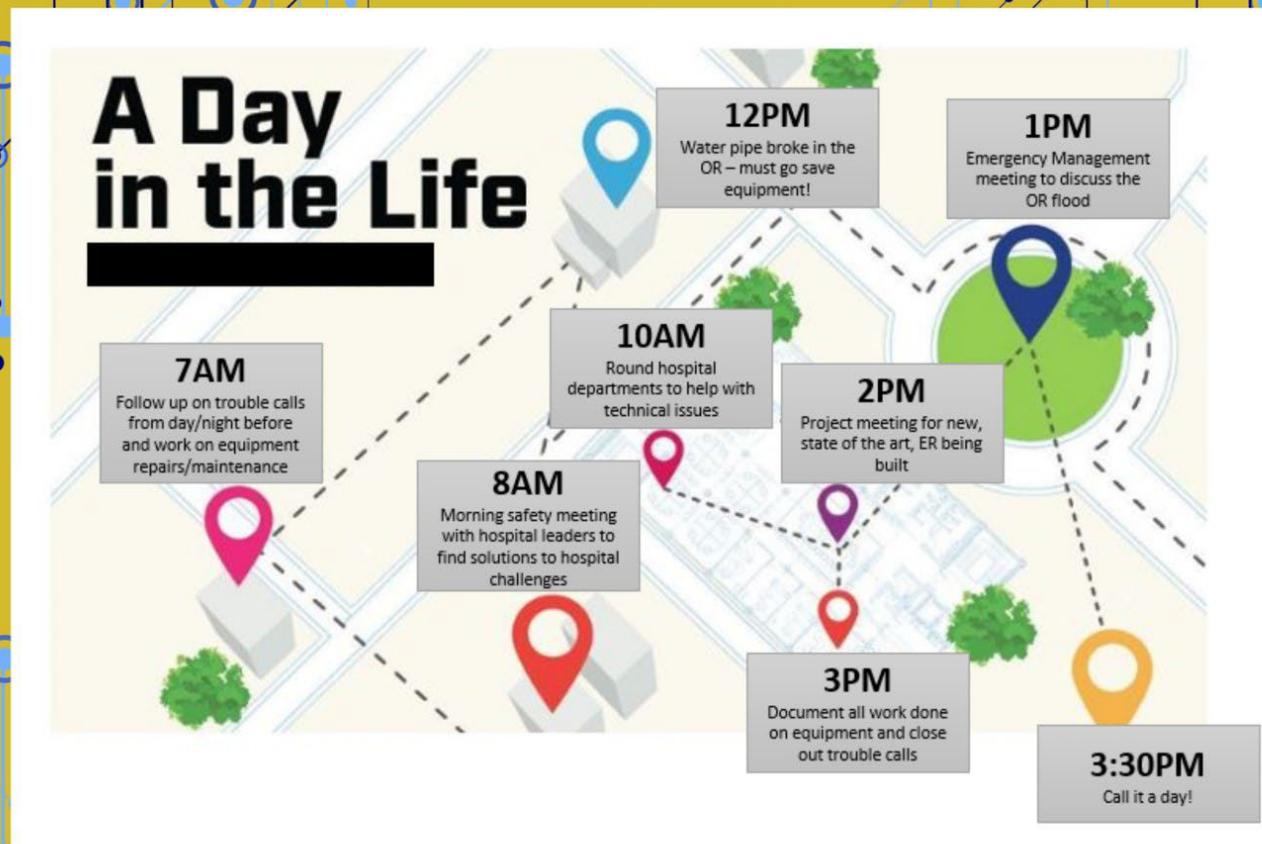


HTM professionals work in all areas of the hospital—the operating room, laboratory, construction sites, patient care floors. They work right alongside doctors, nurses, and other hospital staff.

Notes:

- Mention all the places that HTM professionals can work in the hospital.
- Give examples of what HTM professionals do in each area. Don't forget to mention construction projects as students may find that exciting.
- Mention all the different people and hospital staff you encounter every day.
- Also talk about the breath of technology HTM professionals support. Be sure to mention how that technology is changing to include robotics, Virtual Reality, and Artificial Intelligence.

What is an HTM Professional's Day Like?



Notes:

- Walk through this slide box by box – explaining each action and why it is important.
- Explain how unpredictable your day can be and how no day is the same.
- Ensure the audience understands that whether you are a BMET, Clinical Engineer, or HTM Manager/Director, you will have a role in all these action items. Depending upon your position, your role you play in each issue will be different, but you will be involved in all these events.

Have Fun While Helping Others!

EVERY DAY IS DIFFERENT!

BRINGS YOU TO THE CUTTING EDGE OF TECHNOLOGY!

LEVERAGES YOUR PROBLEM SOLVING ABILITIES!

HTM IS PERFECT FOR...

HTM enables you to make a meaningful difference in the lives of others!

Notes:

- Tell the audience why you love HTM. Excitement is contagious. If you are sincerely excited about the profession, the audience will sense that.
- Stress how the career enables you to help others.
- Fun Fact: Mention that the video music track is made 100% of medical device sounds. Nothing was added in to supplement the track.

HTM is Perfect for People Who....



- Want to work in a hospital
- Strive to help others
- Love technology
- Are creative
- Want to work directly with hospital clinicians
- Do not want a job where you sit at a desk all day
- Want to learn something new every day
- Want a job where no two days are the same!



Notes:

- Stress all these points to the audience.
- The more excited you are about the career, the more excited the audience will be.

To learn more
visit:

www.lamHTM.org



Notes:

- Emphasize that additional information about the field can be found at www.lamHTM.org
- Encourage students to follow AAMI and/or the hashtag #lamHTM on social media.

Adult/College Presentation

H
Healthcare

T
Technology

M
Management

Managing Technology ❤️ Saving Lives

SO, WHAT'S HTM ALL ABOUT?

Notes:

- This presentation is very similar to the High School presentation. The major differences are that this presentation adds salary information into the occupation slides, has a “Related Careers and Degree” slide for potential career changes, and has a “Certification” slide to make listeners aware that the field offers certification options.
- For presentations at colleges: If you are speaking to a group of students in a general electronics program, you should spend much more time focusing on the BMET job role. If you are speaking to a group of engineering students, you should spend much more time on the Clinical Engineering job role. Tailor the presentation to fit your audience.

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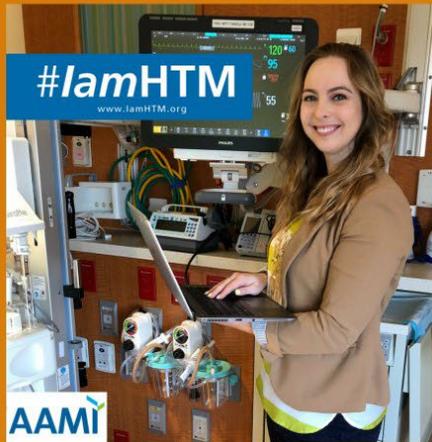
Healthcare

T

Technology

M

Management



"Much like the backstage personnel at a rock concert, healthcare technology managers ensure medical equipment is ready for showtime: when our clinicians need it for our patients. I'm proud that all the planning, implementing, and innovation I develop creates a safer, healing environment for our patients."

What do
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Professionals
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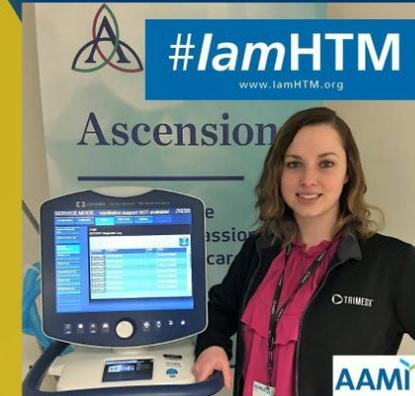
Notes:

- Make the correlation between how HTM is like being the backstage personnel at a rock concert and explain why.
- Ask the students if they have ever been to a hospital or doctor's office and if they have ever thought about how all the medical equipment got where it is (who helped pick it out, who installed it, who tested it to make sure it is working, who trained the clinicians how to use it, how an electrical outlet was placed right next to the device, how the equipment sends patient information back to electronic health record).
- **It is also worth mentioning that the field is sometimes referred to as Biomed or Clinical Engineering within the hospital to ensure the audience understands it is all the same career.**

What do HTM Professionals Do?



- Function as part of the clinical care team
- Help hospitals select new medical equipment
- Fix medical equipment when it breaks
- Train others how to use the equipment
- Work with multidisciplinary hospital committees to improve patient care
- Partner with IT to ensure devices send data to other systems and are secure
- Investigate medical device incidents
- Disaster Planning and Risk Management



“As a clinical engineer, I see the medical equipment as being like a patient. When healthcare technology is sick or down, my job is to nurse it back to health. This is a field that is both rewarding and fun!”

Notes:

- Make it personal. Give some examples of projects you have been involved with.
- Talk about how much HTM professionals work with IT.
- Tell the audience that HTM Professionals basically make healthcare work behind the scenes.
- Mention the quote about how HTM professionals nurse the equipment back to health when its sick – make the correlation back to healthcare.
- Point out the disaster planning and risk management part of the job and give examples of how HIM professionals get involved in these initiatives.

Why HTM?

- There are plenty of jobs. The need for HTM professionals is high.
- The pay and benefits are good.
- Job satisfaction is high. More than 80% surveyed say they are happy with their jobs, pay, and benefits.
- The Medical Device industry is currently valued at \$173 billion in the US and is projected to grow to \$208 billion by 2023 causing the need for HTM professionals to also grow.
- Ranked as one of the "Top 5 Careers You've Never Heard About" in Money Magazine.
- Job security is high: There's strong demand for HTM professionals around the world.
- HTM professionals are needed in every hospital so you can work anywhere!

Professional
Certification

BMET



Clinical
Engineer



HTM
Manager/
Director



Notes:

- This slide is a great place to tell the audience why you love HTM so much. Make your story personal and heartfelt.
- After telling your personal story, review the information on the slide.
- Be sure to reinforce that there are lots of jobs available and they WILL get a job out of school.
- Mention that there are HTM professionals in every hospital so there are plenty of jobs. Point out that you can stay in the town you grew up in or move anywhere in the country. There are also jobs available where you can travel all over the country and world.
- Also mention that HTM professionals can be employed directly by the hospital, by a third-party repair organization or by medical device manufacturer.

Biomedical Equipment Technician (BMET)



- **Median Salary:** \$47,800 (BMET 1), \$71,900 (BMET 3) and \$85,700 (Radiology Specialists)*
- Subject matter experts for the most cutting edge and technologically advanced devices in the hospital
- Troubleshoots and performs planned maintenance on equipment
- Sets up new equipment and assists with the technical configurations of devices
- Works with IT to ensure equipment sends data where it needs to go
- Provides support and training to clinicians



How Do I
Become a
BMET?

*Salary data obtained from the 2019 24x7 Salary Survey

Notes:

- The salaries listed are the median salaries for the entire US. You may want to have more specific salaries prepared for your geographical area.
- Talk through the slide and give short examples to better explain each bullet.
- Inform the audience that you will continue to learn and receive training on the job. It is important to stress that learning does not end when school ends. HTM Professionals are constantly learning about new technology and technology is always changing.
- As technology evolves so does the job of the BMET. BMETs are the subject matter experts for some of the most expensive and complex technologies in the hospital. You will never be bored!
- It is also worth noting that BMETs can also be field service based where they cover a territory and are a specialist for one modality/device. These BMETs get to visit lots of different hospitals.

How Do I Become a BMET?

Related Fields and Degrees

- Obtain a 2 or 4 year degree focused in electronics or biomedical technology.
- Consider switching careers if already working in a related field or hold a comparable degree.
- Volunteer in a HTM (Biomed) Department at your local hospital.



Notes:

- This is our time to convince students that HTM is the career option they want to choose, if they are studying general electronics. If they are in a general program, tell him how to find a career in HTM.
- If the audience is in school or a group of career changers, stress the importance of volunteering in the HTM department as an entry point into the field.
- Explain that some hospitals call their HTM Departments: Clinical Engineering, Biomedical Engineering or Biomed when they call looking to volunteer.
- Have a list of local schools that offer BMET schooling available in case anyone is looking to go back to school or switch degrees.

Related Fields and Degrees

- Information Technology (IT)
- Aviation Electronics
- Respiratory Therapy
- Nursing
- Biomedical Engineering Degree
- Electronics Degree



Notes:

- This slide is meant to appeal to career changers or students current enrolled in one of these programs to show the parallel.
- It is important to ensure the audience realizes that HTM professionals need a mix of skills and there is not just one path or entry point to get into the field.

Clinical Engineer



- Median Salary: \$86,400*
- Assesses need for new equipment
- Manages medical equipment projects
- Looks for ways to make hospital safer by utilizing technology differently
- Investigates medical device failures
- Helps design new hospital care units
- Provides technical support to doctors and nurses
- Trains clinicians about new technology



How Do I
Become a
Clinical
Engineer?

*Salary data obtained from the 2019 24x7 Salary Survey

Notes:

- The salaries listed are the median salaries for the entire US. You may want to have more specific salaries prepared for your geographical area.
- If you are talking to a group of Engineering students, you will want to spend more time going over this job role.
- Give examples for each bullet point.
- Reiterate that you will continue to learn for the rest of your career and clinical engineers are always looking for ways to solve problems in the hospital to improve safety and make care more efficient.

How Do I Become a Clinical Engineer?



- Apply your engineering degree to a clinical environment instead of a research environment!
- Industry or government based on-the-job training programs
- Volunteer at a local hospital's HTM (Biomed) Department.
- Consider a graduate degree in Biomedical/ Clinical Engineering.



Notes:

- This is our time to convince students that HTM is the career option they want to choose, if they are studying engineering. Let the students know that they do not have to be in a lab or an R&D environment. This is a career where they can use their engineering skills in the hospital every day.
- If the audience is in school or a group of career changers, stress the importance of volunteering in the HTM department as an entry point into the field.
- Explain that some hospitals call their HTM Departments: Clinical Engineering, Biomedical Engineering or Biomed when they call looking to volunteer.
- Be sure to mention the Clinical Engineering master's program at the University of Connecticut or the masters degree program of Healthcare Technologies Management at Marquette.

HTM

Manager/Director

- Median Salary: \$133,800*
- Works closely with hospital senior leadership to solve complex challenges involving technology
- Ensures the department meets all regulatory requirements
- Oversees large medical equipment projects
- Manages BMETs and Clinical Engineers
- Assesses data to continually improve the hospital
- Helps to access and mitigate medical device cyber security risks



*Salary data obtained from the 2019 24x7 Salary Survey

Notes:

- The salaries listed are the median salaries for the entire US. You may want to have more specific salaries prepared for your geographical area.
- It is important to spend some time talking about this slide to show that the profession has lots of growth opportunities. Explain how HTM departments at larger hospitals offer department manager and director rolls to move into. There are also regional director and manager opportunities available at third-party service organizations and/or medical device manufacturers.



Professional Certifications are available for HTM Professionals!

- **Certified Biomedical Equipment Technician (CBET)**
- **Certified Radiology Equipment Specialist (CRES)**
- **Certified Clinical Engineer (CCE)**
- **Certified Healthcare Technology Manager (CHTM)**

Notes:

- This slide is meant to let people know that professional certification is available in the field. Do not talk about any of these certifications in depth unless there are specific questions.
- Make sure to distinguish that certification and licensure is different and an HTM Certification is not required to work in the field. However, many organizations do require it for advancement.

Working Environment

HTM professionals work in all areas of the hospital-the operating room, laboratory, construction sites, patient care floors. They work right alongside doctors, nurses, and other hospital staff.



Notes:

- Mention all the places that HTM professionals can work in the hospital.
- Give examples of what HTM professionals do in each area.
- Mention all the different people and hospital staff you encounter every day.

Working Environment

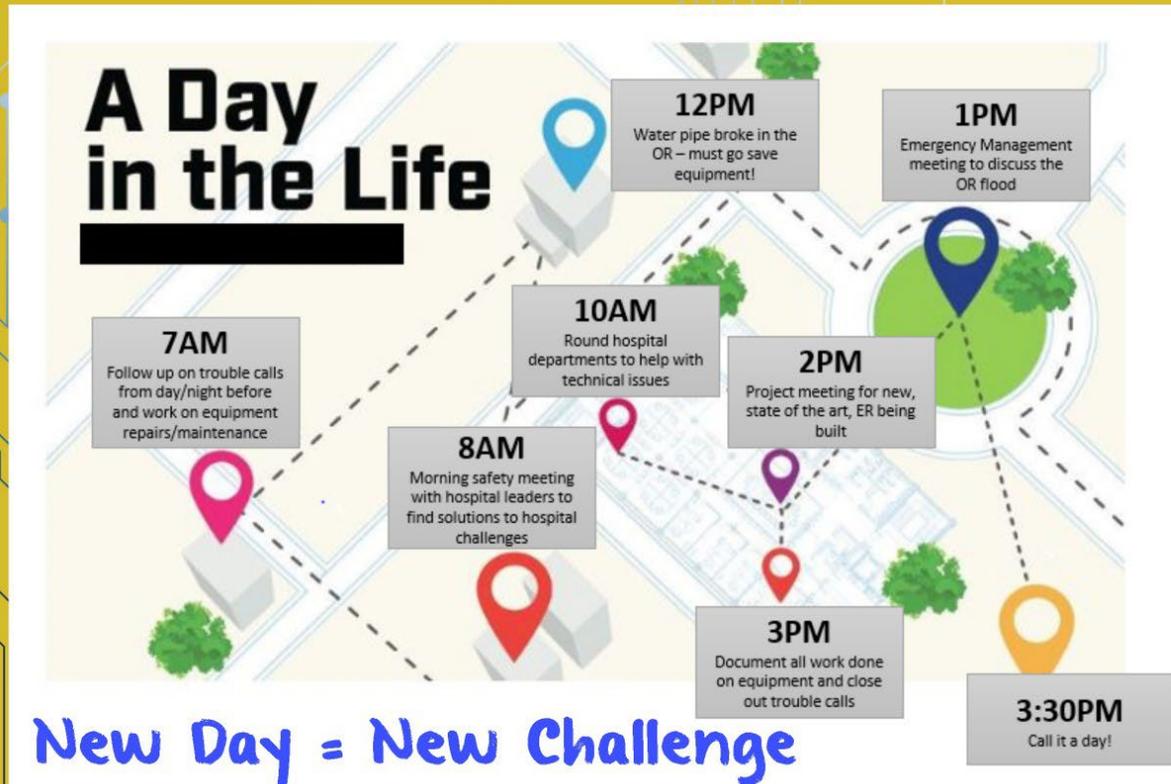
HTM professionals work with all types of technology - from blood pressure cuffs to MRIs! They even work with virtual reality (VR), robots, artificial intelligence (AI) and IT Systems!



Notes:

- Talk about all the different types of equipment you encounter each day.
- Point out the different types of equipment shown on this slide.
- This is a great place to mention how medical equipment has gotten more and more IT based and interoperable. Talk about HTM's role in the convergence of the HTM and IT fields and the role HTM professionals now play in cybersecurity.

What's a typical day like?



Notes:

- Walk through this slide box by box – explaining each action and why it is important.
- Explain how unpredictable your day can be and how no day is the same.
- Ensure the audience understand that whether you are a BMET, Clinical Engineer, or HTM Manager/Director, you will have a role in all these action items. Depending upon your position, your role you play in each issue will be different, but you will be involved in all these areas.

Have Fun While Helping Others!

EVERY DAY IS DIFFERENT!

BRINGS YOU TO THE CUTTING EDGE OF TECHNOLOGY!

LEVERAGES YOUR PROBLEM SOLVING ABILITIES!

HTM IS PERFECT FOR...

HTM enables you to make a meaningful difference in the lives of others!

Notes:

- Tell the audience again why you love HTM. Reinforce your love for the profession - enthusiasm and passion are contagious.
- Stress how the career enables you to make a meaningful difference in the lives of others.
- Fun Fact: Mention that the video music track is made 100% of medical device sounds. Nothing was added in to supplement the track

HTM is Perfect for People Who....



- Want to work in a hospital
- Strive to help others
- Love technology
- Enjoy problem solving and fixing things
- Want to work directly with hospital clinicians
- Do not want a job where you sit at a desk all day
- Want to learn something new every day
- Want a job where no two days are the same!



Notes:

- Stress all these points to the audience.
- The more excited you are about the career, the more excited the audience will be!

To learn more
visit:

www.lamHTM.org



Notes:

- Emphasize that additional information about the field can be found at www.lamHTM.org
- Encourage students to follow AAMI and/or the hashtag #lamHTM on social media.