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Flippin' Medicine: Reflection and Action in Medical Education

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Dr. Heacock-Renaud

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Personal/Reflective Prose

The first time I placed a 12-lead electrocardiogram on a female patient, it was two in the morning and my partner and I had been dispatched to an emergent 911 for a person in respiratory distress. We loaded her into the ambulance and the paramedic handed me the electrodes—and I, in this critical moment, had to pause. I had never placed an EKG on a patient with breasts before; the "nipple line" I had been taught to use as a reference point was far too low, and the typical area for placement was covered by breast tissue. Luckily, I reasoned the correct placement and the pause only amounted to a matter of seconds. Still, I left work that day deeply troubled that I had never witnessed an EKG placed on a person with breasts in all of my training.

Medical education, as it turns out, is full of seemingly strange oversights such as this one. In fact, my moment of weakness on that 911 call was not the first time I had noticed information being left out of my training. I recall my first time learning CPR at the age of 16, practicing chest compressions and rescue breaths on a dummy of a young, white male. I didn't think anything of the dummy at the time, nor the exclusively white, male actors in the instructional videos—but, I felt my own heart stop when the instructor paused the video and suddenly grew very serious. "You see the symptoms up there, chest pain and shortness of breath?" he said. "Women won't usually have those. Their heart attacks present very differently, and they often go unrecognized." That was my first introduction to the reality of being assigned female in the U.S. healthcare system—our symptoms are deemed unworthy of inclusion in videos, our bodies not "normal" enough to be represented in dummies. The disparity only deepens when we consider gender in intersection with race, ability, age, sexuality, and other identities. Diagrams, dummies, textbooks, slideshows, anatomical models, and images in medical education center almost entirely around the experiences of white, cisgender, heterosexual, young, abled, male bodies. As I entered college and began considering a career in medicine, I found myself swirling with questions of

how on earth such an objective, scientific field could exclude so many folks from receiving equitable care.

Driven by overwhelming disappointment in my chosen field, I began searching for answers in medical research as well as through my Women, Gender, and Sexuality Studies classes. I read statistics that rattled me to my core. For example, black patients die of heart disease at rates 33% higher than white patients, and cisgender women die of heart disease at rates 25% higher than cisgender men (American College of Cardiology, 2020). Intersectionality multiplies this disparity for patients with several marginalized identities, as is the case of transgender women, who are 2.5 times more likely to die of heart disease than cisgender women (Walter, 2021). Just as disturbingly, I found that female-presenting cardiac arrest victims are 27% less likely to receive bystander CPR (Womanikin). As I learned more about theories of intersectionality and the medical system, I began to see that the trend of using only very specific white, cisgender, heterosexual, able-bodied models in medicine wasn't some random oversight or fluke; rather, it was the result of institutionalized racism, sexism, ableism, homophobia, transphobia, and other intermingling systems of marginalization that have pervaded science and medicine for centuries. Somewhere along the line, we decided that one type of body was the most "normal" and left the rest for dead—literally.

Once I realized that the medical system itself not only participates in, but also reinforces systems of inequality, I began to see it everywhere. My EMT textbook described cyanosis, a symptom of respiratory distress, as "turning blue" and provided only images of the condition on white skin, though it actually presents as a grayish tone in Black patients. All of the dummies I practiced on were white and male-coded. And, as I realized in the middle of treating a critical patient, no model of EKG placement had depicted a patient with breasts.

After that 911 call, I was angry. Our patient was fine, but what if I had placed those electrodes incorrectly? What if we had missed a critical diagnosis? Even though I had spent much of the past year trying to unlearn my bias as a white female-identified person, I still fell into the trap of normative medicine. Roxane Gay, a prominent intersectional feminist activist and scholar, notes that those with privilege and those with marginalized identities "are having two different conversations in two different universes"; that is, people with privileged identities are often the ones who are least able to recognize the oppression of others because they do not experience it (2021). Medicine is dominated by privileged folks, myself included, who simply do not notice who is being left out of the conversation. Furthermore, we are not equipped to notice. The use of a normative patient model has dangerous consequences, and providers who are trained on one model type will do an inadequate job of treating patients with identities that differ from that hegemonic standard. It is crucial that healthcare providers are taught how to identify normative patient models and deconstruct systemic inequality in both their own practices and the education of future providers, which would undoubtedly save lives.

Determined to direct my frustrations into something concrete and productive, I began to research efforts on diversity in medical education. I came across Malone Mukwende's *Mind The Gap*, a clinical handbook that features images and descriptions of dermatological conditions on Black and Brown skin, as well as the *Womanikin*, a CPR-dummy attachment with breasts to promote inclusive CPR education. Their work was radical, innovative, and inspiring—but the providers who paid these resources any attention, of course, were usually those already taking up the cause of diversity on their own. There had to be a way to get more healthcare providers to understand just how deeply bias permeates the system. I ended up finding inspiration in a quote from a Swedish study on medical education: "critical consciousness… cannot be achieved

without an increased awareness of the context in which students' norms and values exist, and in the systemic issues that determine and sustain differences in health outcomes" (Muntinga *et al.,* 2015). This, I decided, would be my angle. I resolved to create a resource that would guide providers to recognize instances of normativity in medical education, which would equip them to deconstruct bias in their own practices as well as cultivate a new perspective on medical education that is inclusive, equitable, and self-reflective. This resource took the form of a handbook, titled "Flipped Medicine: a guide to deconstructing the normative patient model," which I turned in as my final project for my Intro to Gender Studies course in fall of 2021. The handbook has been attached in Appendix 1 for reference.

I open the handbook with a foreword on the importance of diverse representation in medicine, notes on inclusive language, and a list of statistics that highlight the life-and-death significance of current disparities in medicine. From there, it is divided into two parts, each of which "flip" normative medicine on its head by centering its contents on the embodied experiences of folks with marginalized identities. Part One of the handbook acts as a guide to recognizing normative models in four basic medical situations: heart attacks, cyanosis and pallor, EKG placement, and CPR. In each section, I draw on mainstream methods from real medical textbooks that privilege a white, male-coded, able-bodied model in their descriptions. However, the contents of this handbook are "flipped" so they instead center a patient model with one or more marginalized identities. The "flipped" descriptions serve to de-center white, male-coded, able-bodied models, which makes the dangers of centering all information around a certain model readily apparent. This is what makes a flipped model such an important tool for reflection—when folks who are used to seeing themselves represented in medical texts suddenly find themselves left out, they begin to understand the shortcomings of a normative model. This

reflective experience, coupled with a detailed explanation of the normalizing methods used in the example as they relate to the hegemonic patient model in each case, demonstrates for providers the practice of raising critical consciousness about systems of injustice in medical education. It is my hope that readers may then carry this new way of thinking into higher levels of medicine to begin to question normativity as they see it.

Recognizing systemic inequality, however, is only a preliminary step to eliminating inequality from medical education altogether. In an effort to inspire concrete change, in Part Two of the handbook I encourage providers to reflect on what inclusive, integrated medical education might look like. Muntinga's study on diversity in medical education called for an intracategorical approach to medical education in which materials include many identity categories to examine differences between patient groups and increase visibility of marginalized identities (Muntinga et al., 2015). The intersectional and intracategorical approaches inform the five components of inclusive medical education that I propose in the handbook: inclusion of diverse information, equal integration of information, use of multiple models, use of inclusive language, and explanation of real-world inequalities. One of the flipped subjects in Part One, heart attacks, is revised according to these guidelines and serves as a concrete example of what they could look like in practice. This example, along with discussion questions, encourages providers to reflect on the normative patient model and how they might approach deconstructing bias on their own.

My goal in creating this handbook is ultimately to equip providers with the skills and critical awareness to recognize instances of normativity in medicine, understand why it is harmful, and take action to create a more inclusive and integrated practice of medicine that addresses all patient identities. It is my hope that the limited yet accessible examples and solutions provided in this text inspire providers to apply the same concepts to more specialized

fields than emergency medicine, and to consider the wide variety of other patient identities that influence medical care. It is not the end-all resource, but rather a starting point. A starting point that I wish I, and all medical personnel, would have had all those 911 calls ago. Incorporating inclusion and deconstructing normativity in medical education, and society at large, is a constant, recursive process; it requires effort, time, and a constant willingness to grow. Change demands struggle and, almost always, failure after failure before we finally get it right. However, each pause, each moment of self-examination, is a step towards preserving another life. For this reason, I find that the effort is always worth it.

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Appendix 1

FLIPPED

MEDICINE

A guide to deconstructing the
normative patient model

Table of Contents
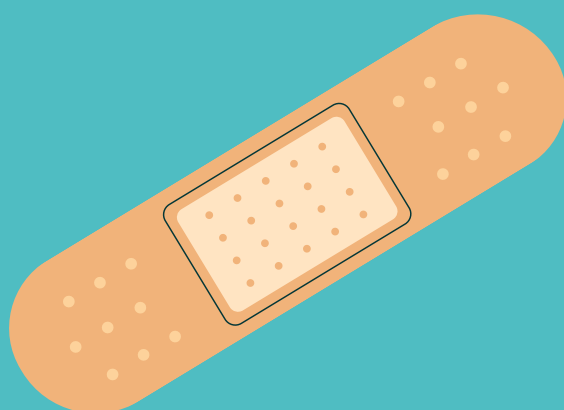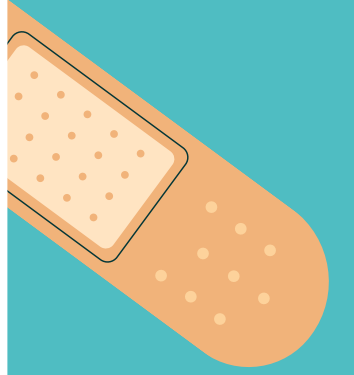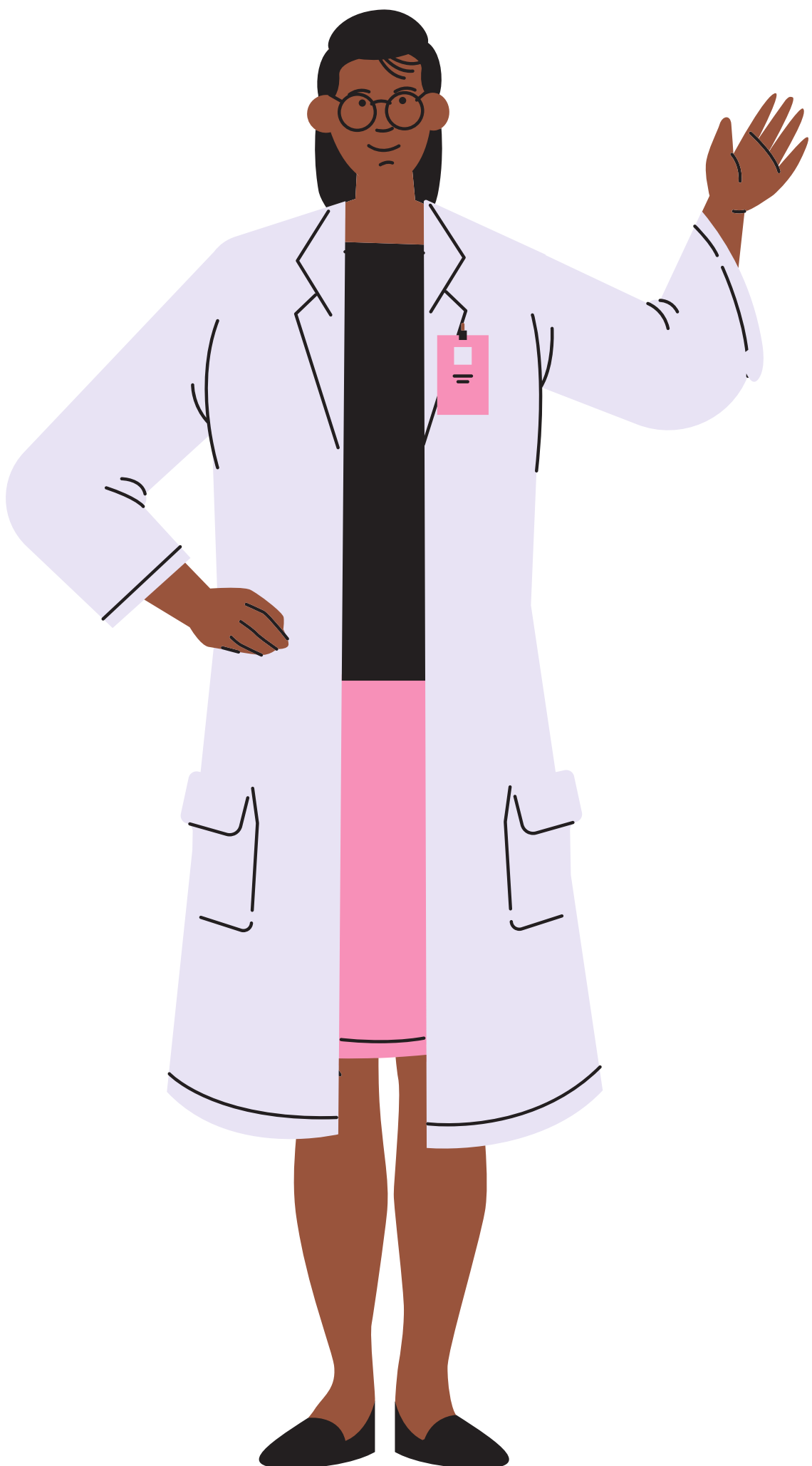
Introduction

Medical education is all about models. To learn how to treat patients, we study models of bodies, models of symptoms, and models of procedures---because good medicine is patient-centered. But what happens when the models we use are only representative of a specific group of patients?

Historically, medicine has centered around a singular model: that of the white, cisgender, heterosexual, abled, middle-class male. While it is known that patients of diverse identities often present differently, medical education continues to use this dominant, normative model as the standard for all patients while ignoring marginalized groups in their descriptions. This has resulted in immeasurable, **avoidable** suffering and death of millions of patients, simply because providers are ill-equipped to diagnose and treat their bodies.

The purpose of this handbook is to challenge the normative patient model by centering its contents around marginalized, intersectional identities as opposed to the norm. In the following pages, a select few commonly known conditions and procedures are described from the perspective of non-dominant identities, each followed by an analysis of the consequences of normative education in their respective contexts. While this book is far from comprehensive, it serves as a starting point for recognition of normativity in medical education, as well as imagines a future where medicine is inclusive and integrated.

The contents of this handbook are not intended to replace academic texts nor medical qualifications. Rather, this is a tool for reflection, self-critique, and systemic challenge. Destroying inequality first requires us to understand the systems that oppress certain identities, as we can not deconstruct them in real life without first deconstructing them in our own minds.

Key Terms

- **Normative:** an assumed standard that is applied to all groups of people by which everyone is measured, regardless of whether it accurately represents all individuals.
- **Identity:** a person's sense of self; often a combination of labels by which people align themselves based on their attributes and experiences.
  - Includes race, ethnicity, gender, sexuality, ability, culture, etc.
- **Intersectionality:** the idea that people are made up of many interacting identities that influence the way a person experiences oppression and privilege, and that these identities can not be disentangled from one another.
- **Cisgender:** a person whose gender identity aligns with their sex assigned at birth.
- **Assigned Female at Birth / Assigned Male at Birth (afab/amab):** describes a person's biological sex as determined at their birth, which may or may not align with their gender identity.
  - Other gender-inclusive terms: people with breasts / uteruses / testes, woman-identifying or man-identifying individuals, male / female-coded.
  - Making assumptions about a patient's sex and gender can lead to dangerous inaccuracies. Language used in this handbook only references relevant characteristics of patients that would affect their care in order to be inclusive of non-binary, intersex, and transgender identities.
- **BIPOC:** This acronym stands for Black Indigenous People Of Color, which recognizes the discrimination faced by all people of color while also acknowledging the specific experiences of Black and Indigenous people in the U.S.

Accurate, inclusive terminology is key to properly representing patients in medical education.

Intersectionality is a matter of life and death.

Why does inclusive medicine matter?

- Black patients die of cardiovascular disease at rates **33% higher** than white patients (American College of Cardiology, 2020).
- Cisgender women die of cardiovascular disease at rates **25% higher** than cisgender men (American College of Cardiology, 2020).
- Transgender women are **2.5 times** more likely to die from cardiovascular disease than cisgender women (Walter, 2021).

- Overall maternal mortality rate for the U.S. in 2019: **20.1** deaths per 100,000 live births (Hoyert, 2021).
    - for non-hispanic white patients: 17.9 deaths
    - for Black patients: **44.0** deaths
    - for Hispanic patients: 12.6 deaths

- Woman-identifying patients are **27% less likely** to receive bystander CPR in the event of cardiac arrest than patients assigned male at birth (Womanikin).

- Life expectancy in the U.S. as of 2018 (Bastian *et. al.,* 2021)
    - white male: 76.4 years
    - Black male: **71.9** years
    - white female: 81.2 years
    - Black female: **78.5** years

- Mortality risk from HIV is **47.6% greater** for transgender women than cisgender women (Walter, 2021). Risk is **increased** for transgender women of color (Howard, 2019).

Part 1: De-centering the Normative Model

This section contains descriptions of four common situations in emergency medicine. Each topic includes a description, which centers around one or more marginalized identities, followed by an analysis. The presentation of diverse identities instead of following the normative model allows us to see the absurdity of using a singular model for all patients, and it highlights the dangerous manner in which patient diversity is ignored and overlooked in extremely common medical contexts.

Heart Attack
(Acute Myocardial Infarction)

An acute myocardial infarction, commonly known as a heart attack, occurs when blood flow to the heart is blocked, causing the heart to be unable to pump blood efficiently throughout the body. Early recognition of heart attack symptoms is key to receiving timely cardiac care.

Common symptoms include:

- neck ache
- light-headedness
- weakness
- unexplained weight gain
- chest pressure

- nausea/vomiting
- tingling of fingers
- back, breast, or upper abdomen pain
- indigestion
- fatigue

It is important to note that patients assigned male at birth commonly have heart attacks that present "atypically", so it is important for providers to be aware of their more subtle symptoms.

"Nonclassical" or "atypical" findings (not necessarily uncommon findings) in patients assigned male at birth:

- chest pain or discomfort
- pain that radiates to the jaw, arms, shoulder, or back
- anxiety
- sense of impending doom
- difficulty breathing
- nausea, vomiting
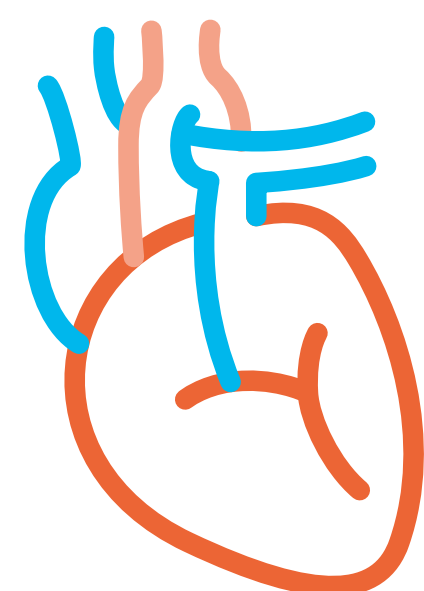
Heart Attack - Analysis

The hallmark sign of a heart attack is the classic image of a (usually white) man clutching his chest in pain. Historically, heart attacks have been regarded as primarily affecting male patients, and studies of heart attack symptoms have thus often focused on subjects who were assigned male at birth. However, it is now well known that patients assigned female at birth commonly exhibit different symptoms, and do **not** often experience chest pain.

Centering the Male-Coded Model

Despite the differences being well researched, medical texts still discuss heart attacks from the perspective of patients assigned male at birth. The general discussion of symptoms usually includes no mention of sex differences, leading the reader to believe these symptoms apply to all groups of people. Sometimes, these differences are left out of a medical text altogether.

"Othering" Non-Male Information

Texts that do bring up sex differences still uphold predominantly male symptoms as the standard. Instead of including the symptoms of patients assigned female at birth in the general discussion of heart attacks, they are placed in a separate section under a different heading. The heading ""Nonclassical" or "atypical" findings (not necessarily uncommon findings)" is borrowed directly from a textbook description of female-specific symptoms. This language, as well as the separation of the description, labels these symptoms as less important, despite the acknowledgement that they are actually extremely common. This dismissal of important medical information can cause providers to miss heart attack signs in patients assigned female at birth, resulting in deadly consequences.

Cyanosis and Pallor

When a person's blood oxygen levels are too low (hypoxaemia), their tissues are not getting enough oxygen to survive, a condition known as hypoxia. Hypoxia may be caused by respiratory distress, low hemoglobin, shock, or a number of other conditions, and it always requires immediate life-saving treatment.

Lack of oxygenated blood results in discoloration of the mucous membranes (lips, gums, tongue, eyelids, nail beds), which serves as a key visual indicator. Patients may present in two ways:

- **Cyanosis** - The mucous membranes may appear gray or bluish-gray in color.
  - In people with light skin, a blue coloration may be present in the skin around these membranes instead of gray.

Central cyanosis   Non-cyanotic patient

- **Pallor** - The mucous membranes may appear pale in color. The palms, a similarly blood-rich area, will appear pale and the palmar creases will appear lighter.
  - In people with light skin, it may be difficult to tell the difference based on palm color, so rely primarily on the mucous membranes.

Conjunctival pallor

Palmar pallor

Images from: Mukwende, M.,Tamony, P., & Turner, M. (2020). Mind The Gap: A Handbook of Clinical Signs in Black and Brown Skin (pp. 1-7). St George's, University London. https://doi.org/10.24376/rd.sgul.12769988.v1

The presence of either condition represents a serious life threat that must be treated immediately.

Adapted from: Mistovich, J. J. & Karren, K. J. (2014). Prehospital Emergency Care (11th Ed.) (pp. 224, 293, 532-534). Pearson Education Inc. And: Mukwende, M.,Tamony, P., & Turner, M. (2020). *Mind The Gap: A Handbook of Clinical Signs in Black and Brown Skin* (pp. 1-7). St George's, University of London. https://doi.org/10.24376/rd.sgul.12769988.v1

Cyanosis and Pallor - Analysis

Most people are familiar with the idea of "turning blue" as an indication of breathing trouble. The image that comes to mind might be a baby with blue coloration around the eyes and lips, which signals to caregivers that there is likely something in the child's airway. However, "blueness" only applies to **white** skin.
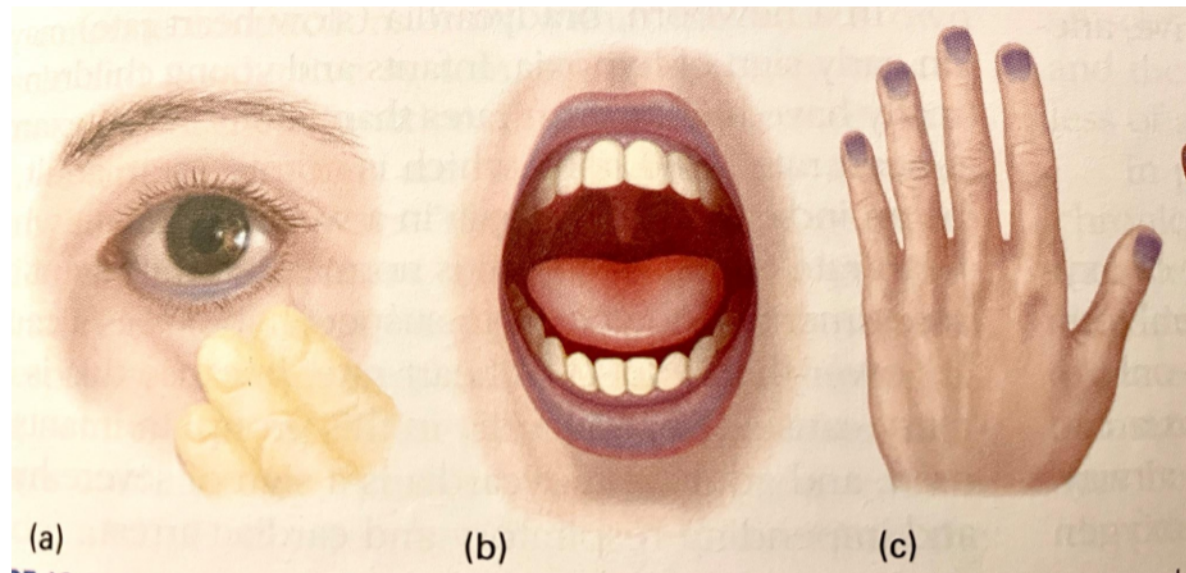

Image from: Mistovich, J. J. & Karren, K. J. (2014). Prehospital Emergency Care (11th Ed.) (pp. 224, 293, 532-534). Pearson Education Inc.

## Blackness as an Afterthought

Just as heart attack symptoms are generally written from the perspective of those assigned male at birth, descriptions of cyanosis and pallor are typically centered around patients with white skin. Cyanosis, for instance, is described as a blue skin discoloration without mentioning the effect of skin tone on its presentation, which makes it seem to apply to all patients. The reader only realizes that BIPOC patients are excluded from this model when a footnote or qualifying sentence is added, briefly noting that patients with darker skin present with grayish skin instead, or that mucous membrane discoloration is a more reliable indicator for these patients. Dark skin is thus treated as an outlier or an afterthought rather than an essential point of consideration, causing providers to be less familiar with signs of hypoxia in such patients.

White Images

Supplemental images are key for providers to be able to recognize cyanosis and pallor in real patients. However, the only images to appear in textbook descriptions of these conditions are usually of white patients. Examples of discoloration of dark skin and mucous membranes are excluded altogether, which means that when providers are presented with BIPOC patients, they may not recognize the signs of hypoxia until it is too late. When a condition is blatantly affected by skin color, there is no logical reason to only represent one skin tone in models used for diagnosis.

EKG Placement

The EKG, or electrocardiogram, is a tool used in both prehospital-emergency and hospital settings that allows providers to view the electrical activity of the heart and determine whether it is functioning properly. The EKG consists of 10 electrodes that recognize electrical activity from different angles.
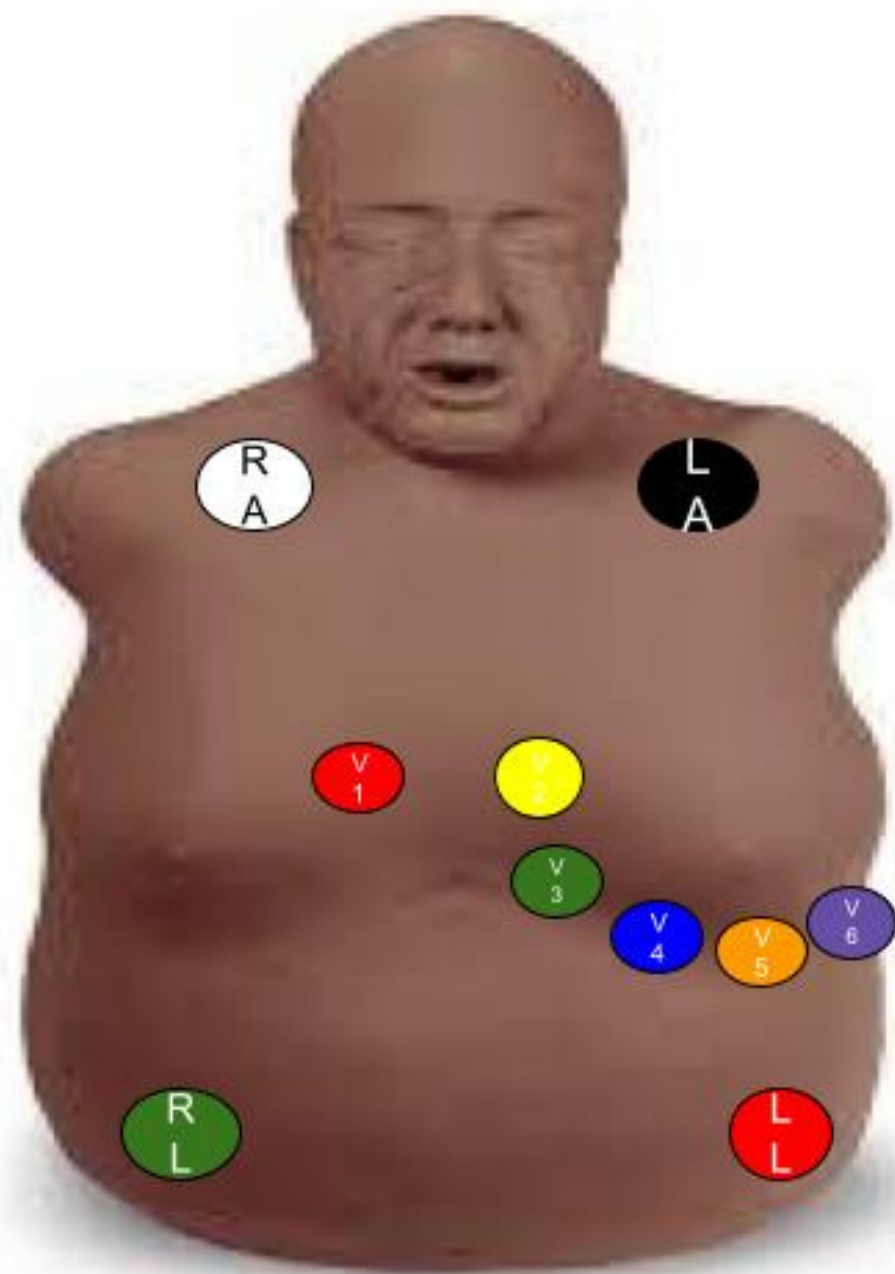
V₁	4ᵗʰ intercostal space to the right of the sternum
V₂	4ᵗʰ intercostal space to the left of the sternum
V₃	Directly between the leads V₂ and V₄
V₄	5ᵗʰ intercostal space at midclavicular line
V₅	Level with V₄ at left anterior axillary line
V₆	Level with V₅ at midaxillary line *(directly under the midpoint of the armpit)*

Extremity Leads

First, place the four extremity leads. RA and LA will be applied to the fronts of the shoulders on the right and left sides, respectively. RL and LL may be placed just above the ankles on the left and right legs, or they may be placed on the right and left sides of the lower abdomen, just above the hips.

V1 and V2

Next, place the six chest leads. Start by feeling for the 4th intercostal space, starting at the top of the sternum and moving down to the fourth space felt. Place V1 and V2 on the right and left sides of the sternum at this location. The positioning of the nipples is **not** a good reference for this location, as patients' breast sizes vary and cause nipple positioning to be different.

V3 through V6

Leads V3 through V6 will be placed under the patient's left breast. The breast may have to be lifted to ensure proper placement. V3 will be placed below V2 and to the left. V6 will be placed on the patient's left side at the midaxillary line. Place V3 and V6 first, then fill in V4 and V5 in order between them, following the curve of the breast. Refer to the figure above for specific intercostal space markers.

Adapted from: Cables and Sensors (2021). *12-Lead ECG Placement With Illustrations.* Cables and Sensors. https://www.cablesandsensors.com/pages/12-lead-ecg-placement-guide-with-illustrations.

EKG placement - Analysis

Educational materials on EKG placement almost universally center around a white, thin, and male-coded model. A normative model for EKG placement causes problems when a patient does not match a specific body type.

Image from: Cables and Sensors (2021). *12-Lead ECG Placement With Illustrations.* Cables and Sensors. https://www.cablesandsensors.com/pages/12-lead-ecg-placement-guide-with-illustrations

Patients with Breasts

In male-coded models, the "nipple line" is often used as a visual marker for placement of V1 and V2 electrodes; but this nipple line varies widely between patients, especially those with breasts, and thus is an inaccurate marker. Male-coded models also do not show that electrodes V3-V6 must be placed under the breast, often requiring the provider to lift the breast to place the electrodes. The absence or misrepresentation of this information produces providers who are uncomfortable working with patients with breasts, which results in lower quality placement and potential for an inaccurate reading.

Bariatric Patients

In patients that have larger body sizes than the lean, athletic male models typically used, electrodes will have to be more spread out to get a proportionate read. Bariatric models or images of electrode placement on larger folks are rare, despite such patients making up a significant number of those needing care. Providers must be exposed to models of all shapes and sizes in order to enact patient care effectively.
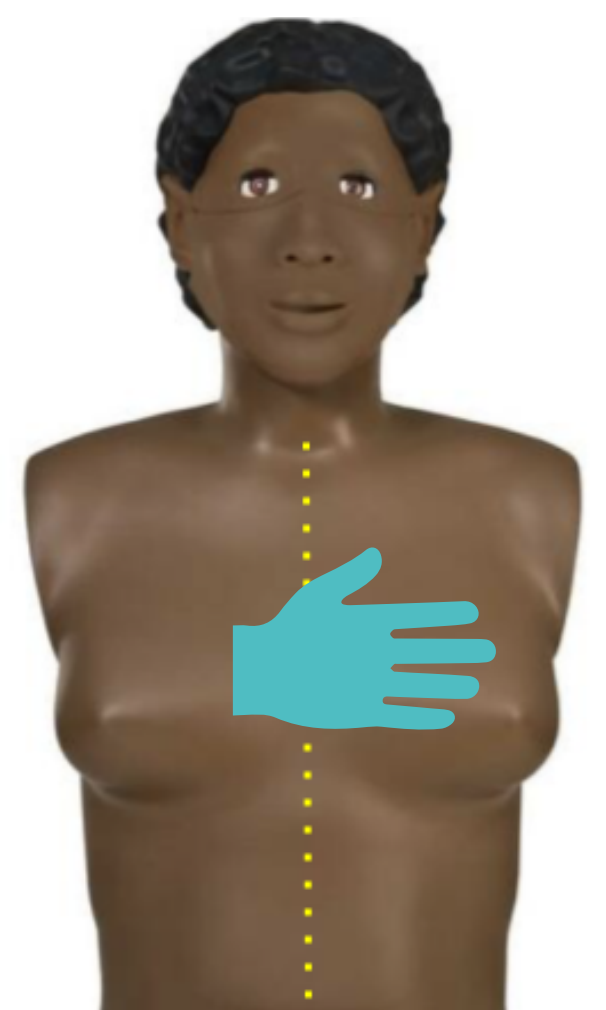
Patients of Color

Though skin color does not directly impact electrode placement, using only white models implicitly makes the provider more comfortable with white bodies. This bias may unintentionally contribute to poorer placement, as a BIPOC body may not look like the models from which the provider was trained.

CPR: Adult Chest Compressions

During cardiac arrest, a person's heart is unable to pump blood efficiently throughout the body. High-quality CPR, or cardiopulmonary resuscitation, keeps oxygenated blood flowing to the brain until a pulse can be recovered. CPR involves two components: chest compressions and breaths. High-quality chest compressions are essential to performing CPR properly.

Hand Placement:

- Place yourself on your knees at the patient's side. The patient should be lying flat on their back.
- Place the heel of one hand in the center of the patient's chest, on the lower half of the breastbone.
- Place your free hand on top of your other hand and interlock your fingers.
- The heels of your hands should be in the center of the chest, and your palms should be positioned on the patient's breast.
- Lean over the patient such that your shoulders are positioned directly over your hands.
- Push straight down on the patient's breastbone.

Images from: Womanikin. (n.d.) Womanikin: A universal attachment to challenge biased CPR training. https://womanikin.org

Guidelines:

- Compress the chest at a rate of 100 to 120 beats per minute.
- Compressions should reach a depth of approximately 2 inches.
- Allow the chest to expand completely before doing the next compression.
- The ratio of compressions to breaths should be 30 compressions : 2 breaths.
- Limit interruptions in chest compressions to no more than 10 seconds.

CPR: Adult Chest Compressions - Analysis

In nearly every CPR course, the dummy practiced on is white and male-coded despite Black patients, woman-identifying patients, and patients with breasts making up a significant portion of the population who might need CPR.

Image from: American Heart Association (2016). Basic Life Support Provider Manual. (pp. 19-21). American Heart Association.

Models without Breasts

When providers learn chest compressions on a dummy that does not have breasts, they become less comfortable rendering care to a patient that does have breasts. This could manifest itself in improper hand placement, which could cause the patient extra harm. Furthermore, a cultural fear of touching a patient's breasts makes providers more hesitant to press firmly on the chest. The use of a model that has breasts would break down some of this apprehension and make providers more comfortable rendering care to such patients.

White Models

While skin color does not directly impact hand placement for chest compressions, practicing on only light-skinned dummies implicitly makes the provider less comfortable with darker-skinned bodies. This bias may cause a lower quality of CPR to be rendered to BIPOC folks, simply because their bodies do not match the model the provider was taught on.

Part 2: Making Medicine Inclusive

Deconstructing the normative patient model begins with learning to recognize its pervasiveness in nearly every context. However, real change requires action; in medicine, it requires a subversion of the typical normative approach to medical education and patient care. This will involve a persistent effort to not only include, but also equally represent every identity in relevant medical contexts. Furthermore, integrated, inclusive medical education must be a recursive process. That is, it must be constantly revisited in order to evolve with a changing world and new discoveries. This section outlines a few guidelines for inclusive medical education, as well as proposes an example textbook entry as a starting point for realistic change.

"The awareness that categories are needed but do not provide an accurate model of identity and difference...[is] a diversity competency in and of itself" (Muntinga *et. al.*, 2016)

Proposed Guidelines for Inclusive Medical Education

- **Inclusion of identity-specific information in all relevant discussions**
  - If there is research pointing to a difference among patient groups, it must be included.
- **Integration of identity-specific information**
  - Discussions of group differences must be integrated equally into the general discussion of the condition or procedure. Identity-specific information must not be relegated to separate sections, afterthought-sentences, or footnotes, as this dismisses their importance.
- **Multiple models**
  - When visual aids or physical models are used, multiple versions should be present in order to give examples of how the condition or procedure looks on many body types.
- **Inclusive language**
  - Language used to describe patient groups must not make assumptions about patient identity. Labels that are used should be immediately relevant to the patient's care.
- **Explanation of relevance**
  - Providers should be made aware of inequalities between patient groups in context, whether by presenting statistics or acknowledging disproportionate outcomes, so they may understand the importance of recognizing differences.

Example - Heart Attacks

An acute myocardial infarction, commonly known as a heart attack, occurs when blood flow to the heart is blocked, causing the heart to be unable to pump blood efficiently throughout the body. Early recognition of heart attack symptoms is key to receiving timely cardiac care.

Symptoms

While symptoms may overlap, patients often experience heart attack symptoms differently based on the sex they were assigned at birth.

- **Most common for patients assigned male at birth:**
  - chest pain or discomfort
  - pain that radiates to the jaw, arms, shoulder, or back
  - shortness of breath
  - nausea, vomiting
  - excessive sweating
  - anxiety
  - sense of impending doom

- **Most common for patients assigned female at birth:**
  - neck ache
  - chest pressure
  - pains in the back, breast, upper abdomen
  - tingling of fingers
  - fatigue
  - unexplained weight gain
  - indigestion
  - nausea, vomiting
  - insomnia

Mortality is Disproportionate
- Black patients die of cardiovascular disease at rates **33% higher** than white patients (American College of Cardiology).
- Cisgender women die of cardiovascular disease at rates **25% higher** than cisgender men (American College of Cardiology).
- Transgender women are **2.5 times** more likely to die from cardiovascular disease than cisgender women (HCP Live).

Example - Analysis

- **Inclusion**
  - This example includes known differences between patients based on the sex they were assigned at birth.
- **Integration**
  - Signs and symptoms for patients assigned female at birth are presented as equally important as those experienced by patients assigned male at birth in the general discussion of symptoms.
- **Multiple Models**
  - Though the models don't directly relate to learning heart attack symptoms, diverse images are presented so that heart attacks are not associated with one group above all others.
- **Inclusive Language**
  - Language is gender-inclusive because sex assigned at birth is the factor of difference between patient groups. This avoids assumptions of gender identity, which is not known to be relevant in diagnosing a myocardial infarction.
- **Explanation of Relevance**
  - Statistics are provided that direct the provider's attention to inequality between patient groups, which will allow them to provide more conscientious care.

The examples and suggestions provided in this handbook are not the definite solutions to making medicine inclusive. Instead, these tools are a starting point for attempting to create medical education that pushes for inclusion and integration of diverse patient identities. With continued progress, this entire handbook will hopefully become outdated as medicine becomes more inclusive than current activists could imagine.

Questions for Self-Reflection

1. In what other areas of your life have you noticed a normative model being applied to all people?

2. Why do you think medicine continues to use normative models despite widespread knowledge of differences between patient groups?

3. What might be an argument for the benefits of a normative model? Is this argument accurate, considering the statistics presented in this handbook?

4. Some identities are discussed more in this handbook than others, but in the grand scope of medicine, all are important to consider. What other patient identities might influence the care patients receive?

5. Based on your personal level of medical knowledge, what other areas of patient care rely on a normative model? What might the consequences be? Furthermore, what might an inclusive approach look like instead?

6. What are some ways you could get involved in deconstructing normative models, whether in your own medical practices or your life in general?

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