2016 *First Aid for the USMLE Step 1*
Official Updates, Corrections, and Clarifications
Final December 31, 2016

Despite our best efforts, errors do occur during a revision. This list addresses content errors that may create confusion. If you are the first individual to submit a referenced correction or clarification to us at www.firstaidteam.com that appears in the next edition, you will receive up to a $20 gift certificate. We check every submission against your reference(s) and other authoritative references to ensure accuracy. Please note that our goal is to provide a high-yield framework for studying and not a comprehensive textbook. Good luck with your studies!

–The First Aid/USMLE-Rx Team

CATEGORIES OF UPDATES

Major Corrections	● Factual errors that could interfere with comprehension
Minor Corrections	● Less significant errors that may cause confusion
Clarifications	● The text is accurate, but could be written more clearly ● Minor formatting issues (misalignments, indents, etc) that may confuse

MAJOR CORRECTIONS

Page	Fact Name	Revision
96	**Homocystinuria**	Add B_6 to the first bullet point: "Cystathionine synthase deficiency (treatment: ↓ methionine, ↑ cysteine, ↑ B_6, B_{12}, and folate in diet)."
203	**Vaccination**	Under Live attenuated vaccine, replace "MMR is the only live attenuated vaccine given to persons with HIV." with "MMR and varicella are live vaccines that can be given to patients with HIV who have CD4 cell count >200."
268	**Resistance, pressure, flow**	Remove "Removal of organs in parallel arrangement (eg, nephrectomy) → ↓ TPR and ↑ CO." from the third column.
326	**Hyper-parathyroidism**	In the "Secondary hyperparathyroidism" row, replace the entire first sentence of the second column with the following, "2° hyperplasia due to ↓ Ca^{2+} absorption and/or ↑ PO_4^{3-}, most often in chronic renal disease (causes hypovitaminosis D and hyperphosphatemia → ↓ Ca^{2+})."
375	**Misoprostol**	From the CLINICAL USE row, remove ";maintenance of a PDA." The drug of choice for this indication is alprostadil.
384	**Coagulation cascade components**	In the flowchart for "Procoagulation," replace "γ-glutamyl transferase" with "γ-glutamyl carboxylase."

390	**Macrocytic (MCV > 100 fL) anemia**	Diamond-Blackfan should be listed under “Nonmegaloblastic anemia,” not “Megaloblastic anemia.
405	**Direct thrombin inhibitors**	In the ADVERSE EFFECTS row, tranexamic acid is an antifibrinolytic agent, not fibrinolytic as the text states.
455	**Neuro transmitters**	Serotonin levels are decreased (↓) in Parkinson disease, not increased (↑).
478	**Cranial nerve and vessel pathways**	The image should show cranial nerve V_1 traveling through the superior orbital fissure, not the foramen rotundum. Note that this is correctly stated in the accompanying table.
550	**Renal cell carcinoma**	Image A of the renal cell carcinoma fact is incorrectly labeled. This is the papillary type (not as common as the clear cell type), with the characteristic interstitial foam cells (cells filled with lipids) of papillary carcinoma
593	**Ovarian neoplasms (*continued)***	Under Immature teratoma, replace "Commonly diagnosed after menopause." with "Commonly diagnosed before age 20."
606	**Congenital lung malformations**	In the Pulmonary hypoplasia row, delete "usually involving right lung" from the end of the first sentence.

MINOR CORRECTIONS

Page	Fact Name	Revision
39	**Pearson correlation coefficient (r)**	Change "Coefficient of determination = r^2 (value that is usually reported)” to the following, "Coefficient of determination = r^2 (amount of variance in one variable that can be explained by variance in another variable)."
48	**Chromatin structure**	The double helix in the image is a left-handed helix. DNA should be in a right-handed helix conformation.
60	**Cilia structure**	Replace "Results in male and female infertility due to ..." with "Results in ↓ male and female fertility due to ..."
90	**Glucose-6-phosphat e dehydrogenase deficiency**	In the lower left-hand side of the illustration, replace "6-phosphogluconate" with "6-phosphogluconolactone"
93	**Hyperammonemia**	Change "Benzoate, phenylacetate, or phenylbutyrate to bind to NH_4+ and lead to excretion" to the following, "Benzoate and phenylbutyrate lead to products of glycine and glutamine, respectively, that are excreted."
118	**Gram-positive lab algorithm**	In the algorithm, change the center blue text (third down from the top) from "Aerobic" to read “Anaerobic/facultative”

124	**Mycobacteria**	Change "Cord factor creates a “serpentine cord” appearance in virulent M tuberculosis strains; inhibits macrophage maturation and induces release of TNF-α." to the following, "Cord factor creates a “serpentine cord” appearance in virulent M tuberculosis strains; activates macrophages (promoting granuloma formation) and induces release of TNF-α."
145	**Ectoparasites**	In the Scabies (*Sarcoptes scabiei*) row, replace ";transmission through fomites." with "transmission through skin-to-skin contact (most common) or via fomites."
160	**Common diseases of HIV-positive adults**	Move the "Histoplasma capsulation" row from under "CD4+ cell count < 100/mm^3" to under "CD4+ cell count < 200/mm^3"
184	**Antiviral therapy**	On the left side of the illustration, the "NRTIs" box, the blunted line should be directed toward the "Reverse transcription" text. Under "Protease" on the left side, proteases are thought to proteolytically mature virions after release from the infected cell, and protease should be located extracellularly.
186	**HIV therapy**	Change "All protease inhibitors end in -navir." to read as follows, "All HIV protease inhibitors end in -navir."
190	**Lymph node**	In the illustration, for the label "Medullary sinus," the dot should be moved towards the hilum, near the efferent lymphatic.
204	**Hypersensitivity types**	In the Type II row, remove “Pernicious anemia” from the bulleted list in the third column (it is better classified as a type IV hypersensitivity reaction).
216	**Apoptosis**	In the Extrinsic (death receptor) pathway row, first bullet, replace "or TNF-α binding to TNF)" with "or TNF-α binding to its receptor)."
230	**Oncogenes**	In the "*HER2/neu (c-erbB2)*" and "*RET*" rows, change "Tyrosine kinase" to "Receptor tyrosine kinase"
312	**Adrenal steroids and congenital adrenal hyperplasias**	In the illustration, "Aldosterone synthase" is only active in the zona glomerulosa, not in both the zona glomerulosa and the zona fasciculata, as shown.
315	**Thyroid hormones (T_3/T_4)**	Please note that the organification of iodine to thyroglobulin and the subsequent coupling reaction with thyroid peroxidase to T_3/T_4 and MIT/DIT occur prior to endocytosis from the follicular lumen into the thyroid follicular epithelial cell.
345	**Pectinate (dentate) line**	In the second column, "Venous drainage: superior rectal vein inferior mesenteric vein portal system" should be changed to read as follows, "Venous drainage: superior rectal vein --> inferior mesenteric vein --> splenic vein --> portal system."

352	**Bile**	In the second bullet, replace “(body’s only means of eliminating cholesterol)” with “(body’s primary means of eliminating cholesterol).”
367	**Hepatic encephalopathy**	Under Treatment, replace "(↓ NH_4^+ producing gut bacteria)." with "(↓ NH_3 producing gut bacteria)."
382	**ABO hemolytic disease of the newborn**	Change "Usually occurs in a type O mother with a type A, B, or AB fetus" to read, "Usually occurs in a type O mother with a type A or B fetus. "
393	**Extrinsic hemolytic anemia**	Under FINDINGS, change "Direct Coombs test—anti-Ig antibody (Coombs reagent) added to patient’s blood" to read "Direct Coombs test—anti-Ig antibody (Coombs reagent) added to patient’s RBCs."
416	**Knee exam**	In the image for Abnormal passive abduction, replace "External rotation" with "Abduction (valgus) force." In the image for Abnormal passive adduction, replace "Internal rotation" with "Adduction (varus) force."
430	**Osteoarthritis and rheumatoid arthritis**	In the diagram for rheumatoid arthritis, the "Pannus formation" label should be pulled back slightly to indicate the darker blue area between the light blue joint capsule/synovial lining and the bone.
432	**Sjögren syndrome**	Change the fourth bullet from "Presence of antinuclear antibodies: SS-A (anti-Ro) and/or SS-B (anti-La)" to read, "Presence of antinuclear antibodies, rheumatoid factor (can be in the absence of rheumatoid arthritis), antiribonucleoprotein antibodies: SS-A (anti-Ro) and/or SS-B (anti-La)"
471	**Idiopathic intracranial hypertension (pseudotumor cerebri)**	Replace "optic nerve fenestration surgery)." with "optic nerve sheath fenestration surgery).”
478	**Cranial nerve and vessel pathways**	Foramen spinosum is located next to the foramen ovale, not where the arrow is currently pointed.
489	**CN III, IV, VI palsies**	The image labeled A next to CN III damage is incorrectly placed in the text. Move the callout for image A to after the sentence "Signs: diminished or absent pupillary light reflex, “blown pupil” often with “down-and-out” gaze [A]."
492	**Multiple sclerosis**	Under FINDINGS, change "Periventricular plaques [A] (areas of oligodendrocyte loss and reactive gliosis) with destruction of axons" to read, "Periventricular plaques [A] (areas of oligodendrocyte loss and reactive gliosis) with preservation of axons."
504	**Parkinson disease drugs**	In the image of dopamine metabolism, within the “PRESYNAPTIC TERMINAL FROM THE SUBSTANTIA NIGRA” bracket, note that COMT converts dopamine into 3-methoxytyramine (3-MT), not

		3-O-methyldopa (3-OMD). The conversion of dopamine to 3-OMD via COMT only occurs in the periphery.
542	**Features of renal disorders**	In the row for "SIADH" and the column for “BLOOD PRESSURE,” the “↑” should be changed to "-/↑" as SIADH does not always cause elevated BP.
551	**Wilms tumor (nephroblastoma)**	Change the last bullet from "Beckwith-Wiedemann: Wilms tumor, macroglossia, organomegaly, hemihypertrophy (*WT2* mutation)" to read as follows, "Beckwith-Wiedemann: Wilms tumor, macroglossia, organomegaly, hemihyperplasia (*WT2* mutation)”
562	**Early fetal development**	In the Early embryonic development image, replace the label “2° oocyte (1N1C)” with “2° oocyte (1N2C).”
563	**Embryologic derivatives**	Under "Ectoderm" change the subheading "Neural crest" to read "Neural tube"
571	**Genital embryology**	In the lower image, replace the label “Mesonephric kidney” with “Metanephric kidney.”
606	**Congenital lung malformations**	Change all the text in the row for "Pulmonary hypoplasia" to read as follows, "Poorly developed bronchial tree with abnormal histology. Associated with congenital diaphragmatic hernia (usually left-sided), bilateral renal agenesis (Potter sequence)."
618	**Obstructive lung diseases**	In the “Chronic bronchitis (‘blue bloater’)” row, change the first sentence in the PATHOLOGY column from, "Hyperplasia of mucus-secreting glands in brochni..." to read, "Hypertrophy and hyperplasia of mucus-secreting glands in bronchi..."
619	**Restrictive lung diseases**	In the bulleted list of Interstitial lung diseases, delete “Goodpasture syndrome.”

CLARIFICATIONS

Page	Fact Name	Revision
70	**Modes of inheritance**	In the X-linked dominant row, remove "Rett syndrome" from the list of examples. While this condition does behave in an X-linked dominant fashion, it is almost always sporadic, and affected individuals tend not to reproduce.
133	**Rickettsial diseases and vector-borne illnesses**	In the Q fever row, replace "Most common cause of culture ⊖ endocarditis." with "Common cause of culture ⊖ endocarditis."
160	**Common diseases of**	Note that while infection with *Cryptosporidium* spp can occur with a CD4+ cell count of 500/mm^3 or below, disease is much more likely to arise when the CD4+ cell count is below 100/mm^3.

	HIV-positive adults	
238	**Urine pH and drug elimination**	For TCAs, note that ammonium chloride administration only serves to increase urinary excretion of the drug via urine acidification, which is rarely done clinically, but is the main teaching point of this fact. The more commonly seen treatment of TCA overdose with sodium bicarbonate has a different mechanism, namely promoting the unbinding of TCAs from sodium channels to reduce their toxic effects. In summary, both may be used as antidotes. Each antidote simply acts differently, and sodium bicarbonate is much more commonly used.
291	**Cardio myopathies**	In the Hypertrophic cardiomyopathy row, replace "(commonly a β-myosin heavy-chain mutation)." with “(most commonly due to mutations in genes encoding sarcomeric proteins, such as myosin binding protein C and β-myosin heavy chain).”
339	**Pancreas and spleen embryology**	In Annular pancreas, replace “and nonbilious vomiting.” with “and vomiting.”
385	**Thrombogenesis**	In the fifth paragraph, replace “Failure of agglutination” with “Failure of aggregation.”
391	**Normocytic, normochromic anemia**	Note that spherocytes, while they can be seen in many forms of extravascular hemolysis, are most strongly associated with hereditary spherocytosis and autoimmune hemolytic anemias.
407	**Cilostazol, dipyridamole**	In the MECHANISM row, replace “Phosphodiesterase III inhibitor;” with “Phosphodiesterase inhibitors;” as these drugs act on different phosphodiesterase subtypes.
471	**Idiopathic intracranial hypertension (pseudotumor cerebri)**	Add “obesity” to the list of risk factors in the first paragraph.
487	**Horner syndrome**	Note that a Pancoast tumor is better classified as a finding outside of the spinal cord; it typically causes a Horner syndrome by compromising the stellate ganglion found alongside, but not within, the spinal cord.
498	**Glaucoma drugs**	In the α-agonists row, note that epinephrine acts on α_1-receptors and decreases aqueous humor production via vasoconstriction, whereas brimonidine directly decreases production via α_2-receptors.
515	**Major depressive disorder**	Delete "usually **lasting 6–12 months**." from the end of the first sentence in the second column.
517	**Specific phobia**	For Agoraphobia, delete “MAO inhibitors” from the Treatment list.

522	**Psychoactive drug intoxication and withdrawal**	In the Opioids row, under the INTOXICATION column, delete “naltrexone” from the Treatment list.
607	**Neonatal respiratory distress syndrome**	In the Complications paragraph, delete “metabolic acidosis.”
621	**Sleep apnea**	In the Obesity hypoventilation syndrome row, delete “(↓ respiratory rate).”
625	**Pancoast tumor (superior sulcus tumor)**	In the second bullet, replace "Superior cervical ganglion" with "Stellate ganglion."