

## Differential Diagnosis of Complex Cases

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### Definition

- **Differential diagnosis** is a process wherein a doctor differentiates between two or more conditions that could be behind a person's symptoms.
- When making a **diagnosis**, a doctor may have a single theory as to the cause of a person's symptoms based off of their clinical findings. They may then order tests to confirm their suspected **diagnosis**.

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### Where to start?

- Get a good history
- Occupation?
- Hobbies?
- Tobacco, ETOH, Drugs?
- Perform a thorough physical exam
- Don't forget, take a good environmental history!

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## Environmental History

- Allergy history (molds, dust, pollens, etc.), see an allergist, allergy shots/SUIT, seasonal changes?
- Home or an apartment? How old is it? Do they feel better inside or outside the home? Any water leaks or moisture problems?
- What chemicals are used in the home (e.g. pesticides/insecticides, furniture wax, lawn care, termite treatments, appliances (gas or electric), water (municipal, well water)?
- EMF exposure: living near a power generating station, substation, high voltage transmission lines, transformer, direct line for TV transmitter, microwave tower, **SMART meter, Wi-Fi, cell towers**, radio towers, what type of electric lights do you have, how do you prepare your food?
- Symptoms from EMF exposure: near a microwave oven, exposure to TV, working in a modern office building with computers, electric typewriters and/or word processors, machinery operation, sensitive to metals, use of an electric blanket, weather changes?

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## Excerpts from the History of Present Illness

- *"Complaints of radiation sensitivity, worse when talking on the cell phone or when she is near/watching TV. Exposure makes her worse." 8/26/2020*
- *"Has EMF symptoms. Her teeth hurt the most, like when air hits it, any cut or tooth with problem EMF attacks it. Better when she stay away from TV's, Wi-Fi, cell phones. Gets some headaches, large floater in left eye comes and goes, much better now, some nauseous, not much, very little pain in right foot and hand." 2/28/2020*
- *"Unable to hold his cell phone. Measuring RF in his environment. The higher the frequency like iPads, PC and cell phone, he gets tighten of his muscles started in his R hand, and it radiates to his arm and into chest, develops racing heart. Symptoms started 8 years ago. Thought initially was getting carpal tunnel. Had EMG's that were negative. Feels like electricity runs through his whole body. Seen multiple neurologist." 6/12/2020*

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## Past Medical and Surgical History

- Do they have any diagnosis that you may question or wonder if accurate? (e.g. Anxiety, but never been anxious before?)
- Look for surgical implants.....consider metal implants?
- Look at their drug list. How many benzo's have been tried? Neurologic drugs like gabapentin? Pain pills? SSRIs/SNRI's?
- Radiology/Imaging: most are structural or anatomical imaging, not functional.

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## Review of Symptoms

- **CV**
  - Denies difficulty breathing at night, near fainting, chest pain or discomfort, racing/skipping heart beats, fatigue, lightheadedness, shortness of breath with exertion, palpitations, swelling of hands or feet, difficulty breathing while lying down, fainting, leg cramps with exertion, bluish discoloration of lips or nails and weight gain.
- **Resp**
  - Denies sleep disturbances due to breathing, cough, shortness of breath, coughing up blood, chest discomfort, wheezing, excessive sputum and excessive snoring.
- **GI**
  - Denies excessive appetite, loss of appetite, indigestion, vomiting blood, nausea, vomiting, yellowish skin color, gas, abdominal pain, abdominal bloating, hemorrhoids, diarrhea, change in bowel habits, constipation, dark tarry stools and bloody stools.

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## Review of Symptoms

- **GU**
  - Denies foul urinary discharge, blood in urine, urinary frequency, inability to empty bladder, urinary urgency, kidney pain, trouble starting urinary stream, painful urination, night time urination, inability to control bladder, genital sores, lack of sexual drive, excessive heavy periods, missed periods, unusual urinary color, other abnormal vaginal bleeding and pelvic pain.
- **MS**
  - Denies muscle cramps, joint pain, joint swelling, presence of joint fluid, back pain, stiffness, muscle weakness, arthritis, gout, loss of strength and muscle aches.
- **Derm**
  - Denies excessive perspiration, night sweats, suspicious lesions, changes in nail beds, dryness, poor wound healing, unusual hair distribution, skin cancer, itching, changes in color of skin, flushing and rash.

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## Review of Symptoms

- **Neuro**
  - Denies difficulty with concentration, poor balance, headaches, disturbances in coordination, numbness, inability to speak, falling down, tingling, brief paralysis, visual disturbances, seizures, weakness, sensation of room spinning, tremors, fainting, excessive daytime sleeping and memory loss.
- **Psych**
  - Denies sense of great danger, anxiety, thoughts of suicide, mental problems, depression, thoughts of violence and frightening visions or sounds.
- **Endo**
  - Denies excessive hunger, cold intolerance, heat intolerance, excessive urination, excessive thirst and weight change.

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## Review of Symptoms

- **Heme**
- Denies enlarged lymph nodes, bleeding, skin discoloration, abnormal bruising and fevers.
- **Allergy**
- Denies persistent infections, hives or rash, and seasonal allergies.

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## Physical Exam

- **General:** Well developed, Well nourished, No acute distress, Thin
- **Head:** Normocephalic, Atraumatic
- **Eyes:** PERRLA/EOM intact, conjunctiva clear, sclera clear, without nystagmus
- **Ears:** TM's intact, Clear canals, Grossly normal hearing
- **Nose:** No deformity, discharge, inflammation or lesions
- **Mouth:** white coated tongue, multiple dental implants, root canals, and fillings
- **Neck:** No masses, thyromegaly, or abnormal cervical nodes
- **Chest Wall:** no deformities or masses noted
- **Lungs:** clear bilaterally to auscultation
- **Heart:** non-displaced, chest non-tender, regular rate and rhythm, S1, S2 without murmurs, rubs or gallops
- **Abdomen:** normal bowel sounds, no hepatosplenomegaly, no hernias or masses noted
- **MSK:** no deformity or scoliosis of thoracic or lumbar spine, unsteady gait
- **Pulses:** diminished L posterior tibial, diminished R posterior tibial, absent L dorsalis pedis, absent R dorsalis pedis, Cold extremities
- **Extremities:** no clubbing, cyanosis, edema or deformity noted with normal full range of motion of all joints
- **Neurologic:** weakness noted, abnormal tandem gait, Romberg's normal, no focal deficits
- **Skin:** intact without lesions or rashes, petechiae on forearms
- **Cervical Nodes:** no significant adenopathy
- **Psych:** anxious, easily distracted, poor concentration

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## Assessment/Plan

- Review laboratory biomarkers.
  - CBC (anemia)
  - CMP (electrolytes)
  - Inflammation (hs-CRP, myeloperoxidase, fibrinogen)
  - Autoimmune (ANA, RF)
  - Mineral and Vitamin analysis (B12)
  - Fatty Acids
  - Heavy metal testing
  - Immune testing (gammaglobulins, T&B lymphocytes, CMI)
  - Genetic testing

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## Increased Genetic Susceptibility

- GSTM1 HLA DR/DQ - glutathione S-transferase, problems with detoxification, cancers
- GSTT1 - glutathione metabolism, problems with detoxification, conjugation of reduced glutathione to a variety of electrophilic and hydrophobic compounds.
- FUT2 - Fucosyltransferase 2, problems with B12 plasma levels
- MTHFR- methylation problems, B12/folate, neural tube defects, homocysteine
- COMT-limits the body's ability to remove catecholamine's (a specific type of molecule that includes dopamine, norepinephrine, estrogen, etc.)

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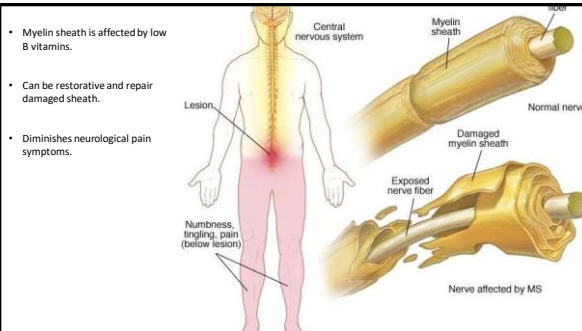
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## Assessment/Plan

- Review imaging (CT, MRI's)
- Review diagnostic testing (EKG's, EEG's, EMG's, NCV's, HRV's)
- Perform an EMF test in a controlled environment.
  - 3 day double-blind test
  - each day has placebos and one active exposure of either 5 Hz, 10 Hz, 60 Hz
  - Pre and post-recording of Digit Symbol or Symbol Digit test, blood pressure, pulse rate, and subjective symptoms.
- Document diagnosis based on symptoms or clinical exam

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## Diagnosis ICD-10 Codes

- Billable codes used to specify a medical diagnosis of radiation sickness.
- Effects of overexposure to electromagnetic radiation
- **T66.XXXA** - Radiation sickness, unspecified [initial encounter]
- **T66.XXXD** Radiation sickness, unspecified, subsequent encounter
- Use other ICD-10 codes: Neuropathy, Paresthesia, Headache, Palpitations, Hypertension, Vasculitis, Vertigo, ANSD, etc.

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## “The Root Cause of the Dramatic Rise of Chronic Disease”-Richard Lear, 2016

### Master Table – Research

The Table 1 below tracks growth and scale of disease and economic statistics for forty chronic diseases and medical conditions. Thirty-six have more than doubled in the past 25 years. It demonstrates the concentration of four new classes of chronic disease and medical conditions, which have dramatically risen since 1990. The focus of this paper has been to identify and examine germless, chronic diseases that share the following common factors:

- Each more than doubled in prevalence since 1990. \*
- Each is associated in scientific studies with:
  - Peroxynitrite
  - Oxidative Stress (OX)
  - Nitrosative Stress (NOX)
  - Mitochondrial Dysfunction (MD)
  - Chronic Inflammation (CI)
  - Autonomic Dysfunction (AD)

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Table 1

Category	Disease/Condition	Total Affected	General on Growth Rate	Total Cost (\$)	Economic Burden (\$B)	Direct Care Cost (\$B)	Indirect/Lost Prod (\$B)	Research (\$B)	Penny/Infra	NOX/Tyrosine Nitration	OX	CI	MD	AD									
1	Neurological	ADD/ADHD	5,312,000 <sup>1</sup>	139% <sup>2</sup>	204.5 <sup>3</sup>	204.5 <sup>3</sup>	42.5 <sup>4</sup>	N/A	.045 <sup>5</sup>	1 <sup>6</sup>	1 <sup>6</sup>	30,513.0 <sup>7</sup>	1 <sup>8</sup>	1 <sup>8</sup>									
2	Inflammatory	Allergies-Rhinitis	60,000,000 <sup>9</sup>	79% <sup>10</sup>	17,513.1 <sup>11</sup>	17,513.1 <sup>11</sup>	17,513.1 <sup>11</sup>	N/A	.009 <sup>12</sup>	2 <sup>13</sup>	2 <sup>13</sup>	2 <sup>13</sup>	2 <sup>13</sup>	2 <sup>13</sup>									
3	Inflammatory	Allergies-Food	16,474,300 <sup>14</sup>	104% <sup>15</sup>	24,889.1 <sup>16</sup>	24,889.1 <sup>16</sup>	24,889.1 <sup>16</sup>	N/A	.035 <sup>17</sup>	1 <sup>18</sup>	1 <sup>18</sup>	1 <sup>18</sup>	1 <sup>18</sup>	1 <sup>18</sup>									
4	Neurological/Inflammatory <sup>19</sup>	Alzheimer's	4,700,000 <sup>20</sup>	299% <sup>21</sup>	227.2 <sup>22</sup>	226.4 <sup>23</sup>	186 <sup>24</sup>		562 <sup>25</sup>	12,177.0 <sup>26</sup> 10,000.0 <sup>27</sup> 10,000.0 <sup>28</sup> 10,000.0 <sup>29</sup> 10,000.0 <sup>30</sup> 10,000.0 <sup>31</sup> 10,000.0 <sup>32</sup> 10,000.0 <sup>33</sup> 10,000.0 <sup>34</sup> 10,000.0 <sup>35</sup> 10,000.0 <sup>36</sup> 10,000.0 <sup>37</sup> 10,000.0 <sup>38</sup> 10,000.0 <sup>39</sup> 10,000.0 <sup>40</sup> 10,000.0 <sup>41</sup> 10,000.0 <sup>42</sup> 10,000.0 <sup>43</sup> 10,000.0 <sup>44</sup> 10,000.0 <sup>45</sup> 10,000.0 <sup>46</sup> 10,000.0 <sup>47</sup> 10,000.0 <sup>48</sup> 10,000.0 <sup>49</sup> 10,000.0 <sup>50</sup> 10,000.0 <sup>51</sup> 10,000.0 <sup>52</sup> 10,000.0 <sup>53</sup> 10,000.0 <sup>54</sup> 10,000.0 <sup>55</sup> 10,000.0 <sup>56</sup> 10,000.0 <sup>57</sup> 10,000.0 <sup>58</sup> 10,000.0 <sup>59</sup> 10,000.0 <sup>60</sup> 10,000.0 <sup>61</sup> 10,000.0 <sup>62</sup> 10,000.0 <sup>63</sup> 10,000.0 <sup>64</sup> 10,000.0 <sup>65</sup> 10,000.0 <sup>66</sup> 10,000.0 <sup>67</sup> 10,000.0 <sup>68</sup> 10,000.0 <sup>69</sup> 10,000.0 <sup>70</sup> 10,000.0 <sup>71</sup> 10,000.0 <sup>72</sup> 10,000.0 <sup>73</sup> 10,000.0 <sup>74</sup> 10,000.0 <sup>75</sup> 10,000.0 <sup>76</sup> 10,000.0 <sup>77</sup> 10,000.0 <sup>78</sup> 10,000.0 <sup>79</sup> 10,000.0 <sup>80</sup> 10,000.0 <sup>81</sup> 10,000.0 <sup>82</sup> 10,000.0 <sup>83</sup> 10,000.0 <sup>84</sup> 10,000.0 <sup>85</sup> 10,000.0 <sup>86</sup> 10,000.0 <sup>87</sup> 10,000.0 <sup>88</sup> 10,000.0 <sup>89</sup> 10,000.0 <sup>90</sup> 10,000.0 <sup>91</sup> 10,000.0 <sup>92</sup> 10,000.0 <sup>93</sup> 10,000.0 <sup>94</sup> 10,000.0 <sup>95</sup> 10,000.0 <sup>96</sup> 10,000.0 <sup>97</sup> 10,000.0 <sup>98</sup> 10,000.0 <sup>99</sup> 10,000.0 <sup>100</sup>	42.3 <sup>22</sup>	42.3 <sup>22</sup>											
5	Mental Health	Anxiety	40,000,000 <sup>104</sup>	104% <sup>105</sup>	42.3 <sup>106</sup>	42.3 <sup>106</sup>																	
6	Mental Health	Panic Disorder	6,000,000 <sup>107</sup>	283% <sup>108</sup>	104.1 <sup>109</sup>	104.1 <sup>109</sup>																	
7	Inflammatory	Osteoarthritis	27,000,000 <sup>110</sup>	149% <sup>111</sup>	153.3 <sup>112</sup>	153.3 <sup>112</sup>	83.6 <sup>113</sup>	69.7 <sup>114</sup>		4 <sup>115</sup>	4 <sup>115</sup>	4 <sup>115</sup>	4 <sup>115</sup>	4 <sup>115</sup>									
8	Inflammatory	Asthma	25,500,000 <sup>116</sup>	142% <sup>117</sup>	62.1 <sup>118</sup>	61.9 <sup>119</sup>	56 <sup>120</sup>	5.9 <sup>121</sup>	241 <sup>122</sup>	75,763.0 <sup>123</sup> 75,763.0 <sup>124</sup> 75,763.0 <sup>125</sup> 75,763.0 <sup>126</sup> 75,763.0 <sup>127</sup> 75,763.0 <sup>128</sup> 75,763.0 <sup>129</sup> 75,763.0 <sup>130</sup> 75,763.0 <sup>131</sup> 75,763.0 <sup>132</sup> 75,763.0 <sup>133</sup> 75,763.0 <sup>134</sup> 75,763.0 <sup>135</sup> 75,763.0 <sup>136</sup> 75,763.0 <sup>137</sup> 75,763.0 <sup>138</sup> 75,763.0 <sup>139</sup> 75,763.0 <sup>140</sup> 75,763.0 <sup>141</sup> 75,763.0 <sup>142</sup> 75,763.0 <sup>143</sup> 75,763.0 <sup>144</sup> 75,763.0 <sup>145</sup> 75,763.0 <sup>146</sup> 75,763.0 <sup>147</sup> 75,763.0 <sup>148</sup> 75,763.0 <sup>149</sup> 75,763.0 <sup>150</sup> 75,763.0 <sup>151</sup> 75,763.0 <sup>152</sup> 75,763.0 <sup>153</sup> 75,763.0 <sup>154</sup> 75,763.0 <sup>155</sup> 75,763.0 <sup>156</sup> 75,763.0 <sup>157</sup> 75,763.0 <sup>158</sup> 75,763.0 <sup>159</sup> 75,763.0 <sup>160</sup> 75,763.0 <sup>161</sup> 75,763.0 <sup>162</sup> 75,763.0 <sup>163</sup> 75,763.0 <sup>164</sup> 75,763.0 <sup>165</sup> 75,763.0 <sup>166</sup> 75,763.0 <sup>167</sup> 75,763.0 <sup>168</sup> 75,763.0 <sup>169</sup> 75,763.0 <sup>170</sup> 75,763.0 <sup>171</sup> 75,763.0 <sup>172</sup> 75,763.0 <sup>173</sup> 75,763.0 <sup>174</sup> 75,763.0 <sup>175</sup> 75,763.0 <sup>176</sup> 75,763.0 <sup>177</sup> 75,763.0 <sup>178</sup> 75,763.0 <sup>179</sup> 75,763.0 <sup>180</sup> 75,763.0 <sup>181</sup> 75,763.0 <sup>182</sup> 75,763.0 <sup>183</sup> 75,763.0 <sup>184</sup> 75,763.0 <sup>185</sup> 75,763.0 <sup>186</sup> 75,763.0 <sup>187</sup> 75,763.0 <sup>188</sup> 75,763.0 <sup>189</sup> 75,763.0 <sup>190</sup> 75,763.0 <sup>191</sup> 75,763.0 <sup>192</sup> 75,763.0 <sup>193</sup> 75,763.0 <sup>194</sup> 75,763.0 <sup>195</sup> 75,763.0 <sup>196</sup> 75,763.0 <sup>197</sup> 75,763.0 <sup>198</sup> 75,763.0 <sup>199</sup> 75,763.0 <sup>200</sup>	61.9 <sup>119</sup>	61.9 <sup>119</sup>											
9	Neurological	Autism Spectrum Disorder	4,664,280 <sup>201</sup>	205% <sup>202</sup>	268.2 <sup>203</sup>	268 <sup>204</sup>	129 <sup>205</sup>		189 <sup>206</sup>	5 <sup>207</sup>	5 <sup>207</sup>	5 <sup>207</sup>	5 <sup>207</sup>	5 <sup>207</sup>									
10	Autism Spectrum	Autism Spectrum Disease	24,114,643 <sup>208</sup>	221% <sup>209</sup>	100.8 <sup>210</sup>	100.8 <sup>210</sup>	100 <sup>211</sup>		822 <sup>212</sup>	8 <sup>213</sup>	8 <sup>213</sup>	8 <sup>213</sup>	8 <sup>213</sup>	8 <sup>213</sup>									
11	Neurological	Bipolar Disorder (Youth)	768,481 <sup>214</sup>	1083% <sup>215</sup>	151.0 <sup>216</sup>	151.0 <sup>216</sup>	30.7 <sup>217</sup>	120.3 <sup>218</sup>		10 <sup>219</sup>	10 <sup>219</sup>	10 <sup>219</sup>	10 <sup>219</sup>	10 <sup>219</sup>									
12	Vision	Cataracts	20,500,000 <sup>220</sup>	480% <sup>221</sup>	10.7 <sup>222</sup>	10.7 <sup>222</sup>	10.7 <sup>222</sup>			2 <sup>223</sup>	2 <sup>223</sup>	2 <sup>223</sup>	2 <sup>223</sup>	2 <sup>223</sup>									

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## Summary

- Thorough evaluation of the patient. Don't get overwhelmed with the symptoms.
- There will be MULTIPLE DIAGNOSES.
- Don't be afraid to second guess their prior diagnosis.
- Teach them how to ground, shield, block, measure, and avoid EMF exposure.
- Acknowledge that they are not the only patient's suffering from this, provide empathy, and HOPE that they can get better!
- Drugs are masking the symptoms.
- Clean up their environment, clean up their water, clean up their nutrition, test for heavy metals, remove their metal dental amalgams, chelate if necessary, implants-desensitization, support their immune system, and teach them how to detoxify.

Level C evidence

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