WEBVTT

NOTE duration: ”00:35:59.445”

NOTE Confidence: 0.99171317

00:00:06.000 --> 00:00:07.120 Okay. So now that we

NOTE Confidence: 0.99171317

00:00:07.120 --> 00:00:09.280 have pneumothorax and pleural effusion

NOTE Confidence: 0.99171317

00:00:09.280 --> 00:00:10.480 under our belts, we will

NOTE Confidence: 0.99171317

00:00:10.480 --> 00:00:12.015 move on to lung pocus

NOTE Confidence: 0.99171317

00:00:12.255 --> 00:00:13.715 for pediatric pneumonia

NOTE Confidence: 0.9951069

00:00:14.015 --> 00:00:16.035 and pearls and pitfalls necessary

NOTE Confidence: 0.9951069

00:00:16.095 --> 00:00:17.235 to be able to differentiate

NOTE Confidence: 0.9951069

00:00:17.535 --> 00:00:19.715 this entity from other causes

NOTE Confidence: 0.9951069

00:00:19.775 --> 00:00:21.395 of lower airway inflammation.

NOTE Confidence: 0.9935594

00:00:24.015 --> 00:00:25.555 So one of the challenges

NOTE Confidence: 0.9935594

00:00:25.775 --> 00:00:26.755 for us clinicians,

NOTE Confidence: 0.97963107

00:00:27.695 --> 00:00:30.150 in diagnosing pediatric pneumonia is

NOTE Confidence: 0.97963107

00:00:30.150 --> 00:00:31.990 that the physical exam has

NOTE Confidence: 0.97963107

00:00:31.990 --> 00:00:33.210 an inherent limitations

NOTE Confidence: 0.98335487

00:00:33.750 --> 00:00:35.190 in order for us to,

NOTE Confidence: 0.98335487

00:00:35.590 --> 00:00:37.670 accurately differentiate other causes of

NOTE Confidence: 0.98335487

00:00:37.670 --> 00:00:39.770 lower airway, disease in children.

NOTE Confidence: 0.9652507

00:00:40.309 --> 00:00:41.850 And this is nicely described

NOTE Confidence: 0.9652507

00:00:41.909 --> 00:00:43.715 in the JAMA twenty seventeen

NOTE Confidence: 0.9652507

00:00:43.854 --> 00:00:45.315 rational clinical examination

NOTE Confidence: 0.9922216

00:00:45.695 --> 00:00:47.775 systematic review series on the

NOTE Confidence: 0.9922216

00:00:47.775 --> 00:00:49.555 topic of pediatric pneumonia.

NOTE Confidence: 0.9669865

00:00:49.935 --> 00:00:51.295 And so using an infiltrate

NOTE Confidence: 0.9669865

00:00:51.295 --> 00:00:52.354 on chest x-ray,

NOTE Confidence: 0.9888784

00:00:53.055 --> 00:00:54.255 as a reference standard for

NOTE Confidence: 0.9888784

00:00:54.255 --> 00:00:56.015 this diagnosis, there was no

NOTE Confidence: 0.9888784

00:00:56.015 --> 00:00:57.635 single finding that could reliably

NOTE Confidence: 0.99659336

00:00:58.150 --> 00:00:59.050 differentiate pneumonia

NOTE Confidence: 0.96934575

00:00:59.430 --> 00:01:01.350 from other causes of childhood

NOTE Confidence: 0.96934575

00:01:01.350 --> 00:01:02.570 respiratory illness,

NOTE Confidence: 0.9992909

00:01:02.950 --> 00:01:04.230 while two of the least

NOTE Confidence: 0.9992909

00:01:04.230 --> 00:01:06.490 important predictors included tachypnea

NOTE Confidence: 0.99495167

00:01:07.110 --> 00:01:08.790 and lung findings on the

NOTE Confidence: 0.99495167

00:01:08.790 --> 00:01:09.770 physical exam.

NOTE Confidence: 0.9923148

00:01:12.185 --> 00:01:13.625 So this JAMA report is

NOTE Confidence: 0.9923148

00:01:13.625 --> 00:01:14.105 really,

NOTE Confidence: 0.9915334

00:01:14.584 --> 00:01:16.584 eye opening because it really

NOTE Confidence: 0.9915334

00:01:16.584 --> 00:01:18.105 puts into question how much

NOTE Confidence: 0.9915334

00:01:18.105 --> 00:01:19.305 time we should even be

NOTE Confidence: 0.9915334

00:01:19.305 --> 00:01:20.665 spending on a lung exam

NOTE Confidence: 0.9915334

00:01:20.665 --> 00:01:22.525 using a stethoscope as opposed

NOTE Confidence: 0.9915334

00:01:22.584 --> 00:01:24.285 to harnessing our skills

NOTE Confidence: 0.99989253

00:01:24.880 --> 00:01:25.540 to perform

NOTE Confidence: 0.99530804

00:01:26.319 --> 00:01:28.740 high quality lung pocus exams

NOTE Confidence: 0.9914872

00:01:29.200 --> 00:01:31.120 with a general awareness of

NOTE Confidence: 0.9914872

00:01:31.120 --> 00:01:31.620 potential

NOTE Confidence: 0.9979109

00:01:31.920 --> 00:01:33.840 limitations of this modality as

NOTE Confidence: 0.9979109

00:01:33.840 --> 00:01:34.340 well.

NOTE Confidence: 0.9859868

00:01:37.535 --> 00:01:38.415 So if you look at

NOTE Confidence: 0.9859868

00:01:38.415 --> 00:01:39.694 what's been published in terms

NOTE Confidence: 0.9859868

00:01:39.694 --> 00:01:40.975 of lung ultrasound for the

NOTE Confidence: 0.9859868

00:01:40.975 --> 00:01:43.535 diagnosis of childhood pneumonia, the,

NOTE Confidence: 0.998697

00:01:44.575 --> 00:01:46.095 findings to date are very

NOTE Confidence: 0.998697

00:01:46.095 --> 00:01:46.595 encouraging.

NOTE Confidence: 0.9188316

00:01:47.695 --> 00:01:49.615 We have meta analysis data

NOTE Confidence: 0.9188316

00:01:49.615 --> 00:01:49.980 published

NOTE Confidence: 0.95843095

00:01:50.780 --> 00:01:51.980 from two thousand fifteen in

NOTE Confidence: 0.95843095

00:01:51.980 --> 00:01:53.120 the Journal of Pediatrics

NOTE Confidence: 0.8933007

00:01:53.740 --> 00:01:55.180 in which they evaluated eight

NOTE Confidence: 0.8933007

00:01:55.180 --> 00:01:56.880 studies of which five,

NOTE Confidence: 0.9993186

00:01:57.820 --> 00:01:59.440 used highly skilled

NOTE Confidence: 0.9137003

00:01:59.980 --> 00:02:00.480 operators,

NOTE Confidence: 0.9731305

00:02:00.860 --> 00:02:02.060 so with with experience in

NOTE Confidence: 0.9731305

00:02:02.060 --> 00:02:02.800 lung ultrasound.

NOTE Confidence: 0.9943693

00:02:03.635 --> 00:02:04.995 In seven hundred and sixty

NOTE Confidence: 0.9943693

00:02:04.995 --> 00:02:06.675 five children, a lung point

NOTE Confidence: 0.9943693

00:02:06.675 --> 00:02:07.795 of care ultrasound had a

NOTE Confidence: 0.9943693

00:02:07.795 --> 00:02:09.715 sensitivity of ninety six percent

NOTE Confidence: 0.9943693

00:02:09.715 --> 00:02:10.615 and a specificity

NOTE Confidence: 0.99684536

00:02:11.315 --> 00:02:12.995 of ninety three percent to

NOTE Confidence: 0.99684536

00:02:12.995 --> 00:02:14.455 detect pediatric pneumonia.

NOTE Confidence: 0.9837738

00:02:14.995 --> 00:02:16.755 All studies incorporated the use

NOTE Confidence: 0.9837738

00:02:16.755 --> 00:02:18.409 of the linear probe. However,

NOTE Confidence: 0.9837738

00:02:18.469 --> 00:02:20.230 the reference standard did have

NOTE Confidence: 0.9837738

00:02:20.230 --> 00:02:21.049 some heterogeneity

NOTE Confidence: 0.95970523

00:02:21.510 --> 00:02:22.250 as some

NOTE Confidence: 0.9366823

00:02:23.189 --> 00:02:24.709 studies used a chest x-ray

NOTE Confidence: 0.9366823

00:02:24.709 --> 00:02:26.409 alone as the criterion

NOTE Confidence: 0.98184735

00:02:26.709 --> 00:02:28.709 standard, while others incorporated both

NOTE Confidence: 0.98184735

00:02:28.709 --> 00:02:30.629 clinical findings with chest x-ray

NOTE Confidence: 0.98184735

00:02:30.629 --> 00:02:31.129 results.

NOTE Confidence: 0.9938735

00:02:33.694 --> 00:02:35.235 So with the linear probe,

NOTE Confidence: 0.9938735

00:02:35.375 --> 00:02:37.215 you will perform a rapid

NOTE Confidence: 0.9938735

00:02:37.215 --> 00:02:39.375 assessment to interrogate all six

NOTE Confidence: 0.9938735

00:02:39.375 --> 00:02:40.194 lung zones.

NOTE Confidence: 0.9294903

00:02:40.575 --> 00:02:41.855 You will start with the

NOTE Confidence: 0.9294903

00:02:41.855 --> 00:02:43.395 probe and the, midlavicular

NOTE Confidence: 0.9814247

00:02:43.775 --> 00:02:45.215 line in the anterior lung

NOTE Confidence: 0.9814247

00:02:45.215 --> 00:02:46.575 field with the indicator towards

NOTE Confidence: 0.9814247

00:02:46.575 --> 00:02:48.630 the patient's head and slide

NOTE Confidence: 0.9814247

00:02:48.630 --> 00:02:50.630 the transducer down towards the

NOTE Confidence: 0.9814247

00:02:50.630 --> 00:02:52.570 diaphragm. And you're gonna repeat

NOTE Confidence: 0.9814247

00:02:52.630 --> 00:02:55.030 these motions in the mid

NOTE Confidence: 0.9814247

00:02:55.030 --> 00:02:56.090 axillary line

NOTE Confidence: 0.7967639

00:02:56.550 --> 00:02:57.370 as shown.

NOTE Confidence: 0.9690185

00:02:58.230 --> 00:02:59.830 And again to the posterior

NOTE Confidence: 0.9690185

00:02:59.830 --> 00:03:00.650 lung fields

NOTE Confidence: 0.9009466

00:03:01.605 --> 00:03:02.345 like so,

NOTE Confidence: 0.9991848

00:03:03.285 --> 00:03:04.325 and you would repeat on

NOTE Confidence: 0.9991848

00:03:04.325 --> 00:03:05.705 the contralateral side.

NOTE Confidence: 0.97034436

00:03:08.245 --> 00:03:09.365 Now for the most part,

NOTE Confidence: 0.97034436

00:03:09.365 --> 00:03:11.365 if everything looks normal on

NOTE Confidence: 0.97034436

00:03:11.365 --> 00:03:12.645 the monitor and you're seeing

NOTE Confidence: 0.97034436

00:03:12.645 --> 00:03:14.005 good a lines with this

NOTE Confidence: 0.97034436

00:03:14.005 --> 00:03:14.905 sagittal orientation,

NOTE Confidence: 0.50612146

00:03:15.770 --> 00:03:16.270 you

NOTE Confidence: 0.84215415

00:03:16.570 --> 00:03:17.370 can move on to the

NOTE Confidence: 0.84215415

00:03:17.370 --> 00:03:18.270 next zone. That

NOTE Confidence: 0.9442865

00:03:18.730 --> 00:03:19.690 said, when something jumps out

NOTE Confidence: 0.9442865

00:03:19.690 --> 00:03:20.669 at me as being abnormal,

NOTE Confidence: 0.9442865

00:03:20.730 --> 00:03:21.450 such as a break in

NOTE Confidence: 0.9442865

00:03:21.450 --> 00:03:23.530 the pleural line or perhaps

NOTE Confidence: 0.9442865

00:03:23.530 --> 00:03:24.730 there's the start of some

NOTE Confidence: 0.9442865

00:03:24.730 --> 00:03:26.169 b lines, I will, at

NOTE Confidence: 0.9442865

00:03:26.169 --> 00:03:27.825 this point, rotate the probe

NOTE Confidence: 0.9442865

00:03:28.224 --> 00:03:29.584 on that same spot to

NOTE Confidence: 0.9442865

00:03:29.584 --> 00:03:30.405 change the

NOTE Confidence: 0.98648494

00:03:30.785 --> 00:03:32.185 angle of insenation and try

NOTE Confidence: 0.98648494

00:03:32.185 --> 00:03:33.665 to get a good overall

NOTE Confidence: 0.98648494

00:03:33.665 --> 00:03:34.864 picture as to what's going

NOTE Confidence: 0.98648494

00:03:34.864 --> 00:03:36.305 on in this area of

NOTE Confidence: 0.98648494

00:03:36.305 --> 00:03:37.425 the lung that has an

NOTE Confidence: 0.98648494

00:03:37.425 --> 00:03:38.405 abnormal finding.

NOTE Confidence: 0.9992862

00:03:40.224 --> 00:03:41.345 So let's start by taking

NOTE Confidence: 0.9992862

00:03:41.345 --> 00:03:42.224 a look at what normal

NOTE Confidence: 0.9992862

00:03:42.224 --> 00:03:43.800 lung ultrasound looks like.

NOTE Confidence: 0.9929587

00:03:44.280 --> 00:03:45.400 Air, as you know, is

NOTE Confidence: 0.9929587

00:03:45.400 --> 00:03:46.780 a poor transmitter

NOTE Confidence: 0.9413871

00:03:47.320 --> 00:03:49.260 of ultrasound. So

NOTE Confidence: 0.9953422

00:03:49.640 --> 00:03:50.920 we're not really seeing lung

NOTE Confidence: 0.9953422

00:03:50.920 --> 00:03:52.040 tissue on the screen, but

NOTE Confidence: 0.9953422

00:03:52.040 --> 00:03:53.480 rather the artifacts that are

NOTE Confidence: 0.9953422

00:03:53.480 --> 00:03:55.480 created by the interface of

NOTE Confidence: 0.9953422

00:03:55.480 --> 00:03:56.140 the pleura

NOTE Confidence: 0.9593431

00:03:56.445 --> 00:03:56.945 with,

NOTE Confidence: 0.96216595

00:03:57.565 --> 00:03:59.085 air filled alveoli right behind

NOTE Confidence: 0.96216595

00:03:59.085 --> 00:03:59.905 it. So

NOTE Confidence: 0.9702404

00:04:00.525 --> 00:04:02.225 in this example, you have,

NOTE Confidence: 0.9931152

00:04:02.685 --> 00:04:04.125 a ping pong effect from

NOTE Confidence: 0.9931152

00:04:04.125 --> 00:04:06.045 the ultrasound beam as it

NOTE Confidence: 0.9931152

00:04:06.045 --> 00:04:07.645 directs that first bright line

NOTE Confidence: 0.9931152

00:04:07.645 --> 00:04:08.445 in the center of the

NOTE Confidence: 0.9931152

00:04:08.445 --> 00:04:09.745 screen, which is the pleura.

NOTE Confidence: 0.99806273

00:04:10.700 --> 00:04:12.480 And this ping pong effect,

NOTE Confidence: 0.99988073

00:04:13.019 --> 00:04:13.840 will cause

NOTE Confidence: 0.99991953

00:04:14.220 --> 00:04:14.720 reverberation

NOTE Confidence: 0.99977213

00:04:15.180 --> 00:04:15.680 artifacts

NOTE Confidence: 0.9610726

00:04:15.980 --> 00:04:17.520 known as a lines

NOTE Confidence: 0.9908713

00:04:17.979 --> 00:04:19.520 that are essentially equidistant

NOTE Confidence: 0.997672

00:04:20.460 --> 00:04:21.979 from the distance between the

NOTE Confidence: 0.997672

00:04:21.979 --> 00:04:23.900 probe on the patient's chest

NOTE Confidence: 0.997672

00:04:23.900 --> 00:04:25.279 to the pleural line.

NOTE Confidence: 0.9996207

00:04:25.875 --> 00:04:26.914 And the reason for these

NOTE Confidence: 0.9996207

00:04:26.914 --> 00:04:27.414 equidistant

NOTE Confidence: 0.98633814

00:04:27.714 --> 00:04:29.095 lines is really the,

NOTE Confidence: 0.9655066

00:04:29.634 --> 00:04:31.315 well known formula distance equals

NOTE Confidence: 0.9655066

00:04:31.315 --> 00:04:31.815 velocity

NOTE Confidence: 0.96070015

00:04:32.194 --> 00:04:34.455 times time. So the ultrasound,

NOTE Confidence: 0.9990695

00:04:34.995 --> 00:04:36.615 beam velocity is a constant.

NOTE Confidence: 0.9990695

00:04:36.754 --> 00:04:37.955 So what changes is how

NOTE Confidence: 0.9990695

00:04:37.955 --> 00:04:38.835 long it takes for the

NOTE Confidence: 0.9990695

00:04:38.835 --> 00:04:40.020 ultrasound beam to travel

NOTE Confidence: 0.99093103

00:04:40.740 --> 00:04:41.379 to get reflected off of

NOTE Confidence: 0.99093103

00:04:41.379 --> 00:04:43.300 the pleura depending on the,

NOTE Confidence: 0.99093103

00:04:43.620 --> 00:04:44.979 size of the chest wall

NOTE Confidence: 0.99093103

00:04:44.979 --> 00:04:45.860 and the age of the

NOTE Confidence: 0.99093103

00:04:45.860 --> 00:04:46.360 patient.

NOTE Confidence: 0.9846898

00:04:46.660 --> 00:04:47.860 And so these a lines

NOTE Confidence: 0.9846898

00:04:47.860 --> 00:04:48.740 that are created,

NOTE Confidence: 0.99314326

00:04:49.139 --> 00:04:50.659 behind the pleura are the

NOTE Confidence: 0.99314326

00:04:50.659 --> 00:04:52.599 same distance, from one another.

NOTE Confidence: 0.98002243

00:04:52.900 --> 00:04:54.325 So the important point here

NOTE Confidence: 0.98002243

00:04:54.325 --> 00:04:56.085 is that a lines are

NOTE Confidence: 0.98002243

00:04:56.085 --> 00:04:58.105 good and normal and reflect

NOTE Confidence: 0.98002243

00:04:58.325 --> 00:05:00.585 well aerated healthy lung tissue,

NOTE Confidence: 0.98002243

00:05:00.645 --> 00:05:01.685 and the absence of a

NOTE Confidence: 0.98002243

00:05:01.685 --> 00:05:03.044 lines tends to signal some

NOTE Confidence: 0.98002243

00:05:03.044 --> 00:05:03.544 pathology

NOTE Confidence: 0.9998155

00:05:03.845 --> 00:05:04.904 within the lungs.

NOTE Confidence: 0.9770721

00:05:07.230 --> 00:05:09.230 So in contrast, beelines are

NOTE Confidence: 0.9770721

00:05:09.230 --> 00:05:11.470 bad, and they are actually

NOTE Confidence: 0.9770721

00:05:11.470 --> 00:05:12.690 created by a different,

NOTE Confidence: 0.9658364

00:05:13.550 --> 00:05:15.169 type of reverberation artifact.

NOTE Confidence: 0.9943808

00:05:15.710 --> 00:05:17.490 But beelines are a reverberation

NOTE Confidence: 0.97514176

00:05:17.790 --> 00:05:19.835 artifact nonetheless. So what tends

NOTE Confidence: 0.97514176

00:05:19.835 --> 00:05:21.355 to happen here is that

NOTE Confidence: 0.97514176

00:05:21.355 --> 00:05:22.635 when you have wet lung

NOTE Confidence: 0.97514176

00:05:22.635 --> 00:05:23.135 or

NOTE Confidence: 0.9959411

00:05:23.515 --> 00:05:24.815 fluid filled alveolar

NOTE Confidence: 0.99738765

00:05:25.195 --> 00:05:26.335 sacs, the

NOTE Confidence: 0.98169494

00:05:26.795 --> 00:05:28.555 ultrasound beam gets trapped within

NOTE Confidence: 0.98169494

00:05:28.555 --> 00:05:30.315 these fluid filled bubbles. And

NOTE Confidence: 0.98169494

00:05:30.315 --> 00:05:31.675 the ping pong effect, rather

NOTE Confidence: 0.98169494

00:05:31.675 --> 00:05:34.075 than occurring between the probe

NOTE Confidence: 0.98169494

00:05:34.075 --> 00:05:35.779 and the pleura, actually happens

NOTE Confidence: 0.98169494

00:05:36.080 --> 00:05:37.680 within the inflamed and fluid

NOTE Confidence: 0.98169494

00:05:37.680 --> 00:05:38.659 filled alveoli

NOTE Confidence: 0.98020554

00:05:39.279 --> 00:05:40.800 instead. And so the image

NOTE Confidence: 0.98020554

00:05:40.800 --> 00:05:42.419 that is created is

NOTE Confidence: 0.9867414

00:05:42.800 --> 00:05:44.740 a series of tightly packed

NOTE Confidence: 0.9867414

00:05:44.800 --> 00:05:47.039 horizontal lines, one on top

NOTE Confidence: 0.9867414

00:05:47.039 --> 00:05:48.615 of the other, that dive

NOTE Confidence: 0.9867414

00:05:48.775 --> 00:05:49.654 all the way down to

NOTE Confidence: 0.9867414

00:05:49.654 --> 00:05:50.875 the bottom of the screen.

NOTE Confidence: 0.9867414

00:05:51.095 --> 00:05:52.455 And as beelines become more

NOTE Confidence: 0.9867414

00:05:52.455 --> 00:05:54.134 diffuse and more prominent on

NOTE Confidence: 0.9867414

00:05:54.134 --> 00:05:55.815 your monitor, this is going

NOTE Confidence: 0.9867414

00:05:55.815 --> 00:05:57.275 to be linked with

NOTE Confidence: 0.98777956

00:05:57.654 --> 00:05:58.555 a more severe,

NOTE Confidence: 0.9768095

00:05:59.574 --> 00:06:00.535 process of,

NOTE Confidence: 0.9990566

00:06:01.495 --> 00:06:01.995 interstitial

NOTE Confidence: 0.9989915

00:06:02.375 --> 00:06:02.875 alveolar

NOTE Confidence: 0.99988043

00:06:03.255 --> 00:06:03.755 disease.

NOTE Confidence: 0.97004676

00:06:06.300 --> 00:06:07.500 Okay. So here we have

NOTE Confidence: 0.97004676

00:06:07.500 --> 00:06:09.520 some examples of abnormal findings,

NOTE Confidence: 0.97004676

00:06:09.820 --> 00:06:11.740 by lung ultrasound in the

NOTE Confidence: 0.97004676

00:06:11.740 --> 00:06:12.940 clip on the left using

NOTE Confidence: 0.97004676

00:06:12.940 --> 00:06:14.720 a high frequency linear probe.

NOTE Confidence: 0.94440025

00:06:15.180 --> 00:06:16.060 You're able to see a

NOTE Confidence: 0.94440025

00:06:16.060 --> 00:06:17.580 series of b lines that

NOTE Confidence: 0.94440025

00:06:17.580 --> 00:06:18.620 are all,

NOTE Confidence: 0.9913098

00:06:19.455 --> 00:06:20.495 diving down to the bottom

NOTE Confidence: 0.9913098

00:06:20.495 --> 00:06:21.235 of the screen,

NOTE Confidence: 0.98104304

00:06:21.535 --> 00:06:23.455 which, are starting from one

NOTE Confidence: 0.98104304

00:06:23.455 --> 00:06:24.514 area of confluence,

NOTE Confidence: 0.9846786

00:06:24.975 --> 00:06:25.955 between two,

NOTE Confidence: 0.8287586

00:06:26.495 --> 00:06:27.235 rib spaces,

NOTE Confidence: 0.9954166

00:06:27.615 --> 00:06:28.354 on the pleura.

NOTE Confidence: 0.97480357

00:06:28.654 --> 00:06:29.775 And on the right side

NOTE Confidence: 0.97480357

00:06:29.775 --> 00:06:30.895 of video clip, you can

NOTE Confidence: 0.97480357

00:06:30.895 --> 00:06:32.735 see b lines as would

NOTE Confidence: 0.97480357

00:06:32.735 --> 00:06:33.475 be created,

NOTE Confidence: 0.99806607

00:06:34.029 --> 00:06:35.490 using a phased array

NOTE Confidence: 0.99953306

00:06:35.870 --> 00:06:36.370 transducer.

NOTE Confidence: 0.98916614

00:06:36.830 --> 00:06:38.450 Again, these tightly packed horizontal

NOTE Confidence: 0.98091286

00:06:38.910 --> 00:06:40.670 reverberation artifacts can be seen

NOTE Confidence: 0.98091286

00:06:40.670 --> 00:06:41.550 to dive all the way

NOTE Confidence: 0.98091286

00:06:41.550 --> 00:06:42.350 down to the bottom of

NOTE Confidence: 0.98091286

00:06:42.350 --> 00:06:43.550 the screen, and there are

NOTE Confidence: 0.98091286

00:06:43.550 --> 00:06:45.410 no clear a lines visible.

NOTE Confidence: 0.98091286

00:06:45.470 --> 00:06:46.830 So this pattern would always

NOTE Confidence: 0.98091286

00:06:46.830 --> 00:06:48.225 be abnormal when performing a

NOTE Confidence: 0.98091286

00:06:48.225 --> 00:06:49.205 a lung ultrasound.

NOTE Confidence: 0.9852307

00:06:51.825 --> 00:06:53.025 So when we think about

NOTE Confidence: 0.9852307

00:06:53.025 --> 00:06:54.785 diagnosing lung ultrasound by point

NOTE Confidence: 0.9852307

00:06:54.785 --> 00:06:55.904 of care ultrasound, there is

NOTE Confidence: 0.9852307

00:06:55.904 --> 00:06:57.445 a spectrum of findings.

NOTE Confidence: 0.9987417

00:06:57.985 --> 00:06:59.045 Some of the earlier

NOTE Confidence: 0.9921235

00:06:59.585 --> 00:07:00.865 findings would be the presence

NOTE Confidence: 0.9921235

00:07:00.865 --> 00:07:01.605 of beelines

NOTE Confidence: 0.9351562

00:07:02.069 --> 00:07:04.169 alone, and, these can

NOTE Confidence: 0.9428187

00:07:04.870 --> 00:07:07.430 be differentiated into isolated versus

NOTE Confidence: 0.9428187

00:07:07.430 --> 00:07:09.669 confluent with confluent being, a

NOTE Confidence: 0.9428187

00:07:09.669 --> 00:07:10.889 more concerning finding.

NOTE Confidence: 0.95368403

00:07:11.270 --> 00:07:12.550 And you wanna just train

NOTE Confidence: 0.95368403

00:07:12.550 --> 00:07:13.909 yourself to be a good

NOTE Confidence: 0.95368403

00:07:13.909 --> 00:07:14.409 detective

NOTE Confidence: 0.9996942

00:07:14.789 --> 00:07:15.289 of

NOTE Confidence: 0.7140629

00:07:15.615 --> 00:07:16.835 plural changes.

NOTE Confidence: 0.9614297

00:07:17.375 --> 00:07:19.055 So you will become accustomed

NOTE Confidence: 0.9614297

00:07:19.055 --> 00:07:20.655 to disruptions of the pleural

NOTE Confidence: 0.9614297

00:07:20.655 --> 00:07:22.735 line being a possible early

NOTE Confidence: 0.9614297

00:07:22.735 --> 00:07:23.955 and concerning finding,

NOTE Confidence: 0.99891967

00:07:24.895 --> 00:07:26.835 to suggest underlying pneumonia.

NOTE Confidence: 0.9757848

00:07:27.135 --> 00:07:28.735 And finally, with these pleural

NOTE Confidence: 0.9757848

00:07:28.735 --> 00:07:29.635 line disruptions,

NOTE Confidence: 0.9365421

00:07:30.260 --> 00:07:31.400 you can have,

NOTE Confidence: 0.90327835

00:07:32.100 --> 00:07:33.240 small subcentimeter

NOTE Confidence: 0.9334023

00:07:33.940 --> 00:07:36.440 subpleural lesions or collections, which

NOTE Confidence: 0.9334023

00:07:36.740 --> 00:07:38.280 are unfortunately nonspecific

NOTE Confidence: 0.9982085

00:07:38.580 --> 00:07:40.440 and could reflect either atelectasis

NOTE Confidence: 0.97297657

00:07:40.820 --> 00:07:42.340 or the start of a,

NOTE Confidence: 0.97297657

00:07:42.660 --> 00:07:43.880 infiltrative process.

NOTE Confidence: 0.9934214

00:07:46.305 --> 00:07:47.264 So here we have a

NOTE Confidence: 0.9934214

00:07:47.264 --> 00:07:48.145 two year old boy with

NOTE Confidence: 0.9934214

00:07:48.145 --> 00:07:48.645 bronchiolitis

NOTE Confidence: 0.99687696

00:07:49.104 --> 00:07:51.025 and reactive airway disease.

NOTE Confidence: 0.99871445

00:07:51.345 --> 00:07:52.245 You can see

NOTE Confidence: 0.9869414

00:07:52.625 --> 00:07:53.585 over the center of the

NOTE Confidence: 0.9869414

00:07:53.585 --> 00:07:55.345 screen, there is a small

NOTE Confidence: 0.9869414

00:07:55.345 --> 00:07:55.845 divot,

NOTE Confidence: 0.9685705

00:07:56.465 --> 00:07:57.800 and a dip in that,

NOTE Confidence: 0.9685705

00:07:58.199 --> 00:08:00.280 pleural line. So although this

NOTE Confidence: 0.9685705

00:08:00.280 --> 00:08:01.419 would, potentially

NOTE Confidence: 0.9616892

00:08:02.039 --> 00:08:03.660 some lower airway,

NOTE Confidence: 0.9969968

00:08:04.120 --> 00:08:04.620 process,

NOTE Confidence: 0.9909474

00:08:05.000 --> 00:08:05.960 we should not be using

NOTE Confidence: 0.9909474

00:08:05.960 --> 00:08:07.160 this finding alone to make

NOTE Confidence: 0.9909474

00:08:07.160 --> 00:08:09.560 a diagnosis of, pediatric pneumonia

NOTE Confidence: 0.9909474

00:08:09.560 --> 00:08:10.919 by lung ultrasound as this

NOTE Confidence: 0.9909474

00:08:10.919 --> 00:08:12.280 is a very mild and

NOTE Confidence: 0.9909474

00:08:12.280 --> 00:08:12.780 nonspecific

NOTE Confidence: 0.99830985

00:08:16.115 --> 00:08:16.615 finding.

NOTE Confidence: 0.97015923

00:08:16.995 --> 00:08:18.455 These following clips,

NOTE Confidence: 0.99808407

00:08:19.075 --> 00:08:20.455 show an additional,

NOTE Confidence: 0.9478036

00:08:21.155 --> 00:08:22.835 I would say progression of,

NOTE Confidence: 0.9478036

00:08:23.075 --> 00:08:24.935 the spectrum of findings. So

NOTE Confidence: 0.9356041

00:08:25.480 --> 00:08:26.300 on the,

NOTE Confidence: 0.9850626

00:08:27.240 --> 00:08:28.120 first clip on the left

NOTE Confidence: 0.9850626

00:08:28.120 --> 00:08:29.800 hand side, there's a linear

NOTE Confidence: 0.9850626

00:08:29.800 --> 00:08:30.300 probe,

NOTE Confidence: 0.9766937

00:08:30.840 --> 00:08:32.120 and you can see again

NOTE Confidence: 0.9766937

00:08:32.120 --> 00:08:33.740 disruption of the pleural line.

NOTE Confidence: 0.9766937

00:08:34.040 --> 00:08:35.160 We would call this an

NOTE Confidence: 0.9766937

00:08:35.160 --> 00:08:37.559 isolated beeline focus emanating from

NOTE Confidence: 0.9766937

00:08:37.559 --> 00:08:38.679 the same spot in the

NOTE Confidence: 0.9766937

00:08:38.679 --> 00:08:40.360 pleura. These are tough because

NOTE Confidence: 0.9766937

00:08:40.360 --> 00:08:41.205 they could reflect

NOTE Confidence: 0.9992756

00:08:41.605 --> 00:08:43.785 early pneumonia versus atelectasis.

NOTE Confidence: 0.99825186

00:08:45.365 --> 00:08:45.865 On

NOTE Confidence: 0.9961729

00:08:46.325 --> 00:08:47.445 the clip on the right

NOTE Confidence: 0.9961729

00:08:47.445 --> 00:08:48.985 hand side, you can see

NOTE Confidence: 0.9961729

00:08:49.285 --> 00:08:50.585 a greater confluence

NOTE Confidence: 0.8755779

00:08:51.285 --> 00:08:52.105 of beelines,

NOTE Confidence: 0.99978393

00:08:52.885 --> 00:08:53.385 which

NOTE Confidence: 0.9621721

00:08:53.990 --> 00:08:55.370 again are arising from,

NOTE Confidence: 0.94179904

00:08:56.790 --> 00:08:58.809 a single subpleural focus.

NOTE Confidence: 0.99968064

00:08:59.270 --> 00:09:00.390 What I would typically do

NOTE Confidence: 0.99968064

00:09:00.390 --> 00:09:01.370 here is

NOTE Confidence: 0.9997938

00:09:01.750 --> 00:09:03.050 rotate the probe

NOTE Confidence: 0.9808415

00:09:03.589 --> 00:09:05.110 three hundred and sixty degrees

NOTE Confidence: 0.9808415

00:09:05.110 --> 00:09:06.070 to see if there are

NOTE Confidence: 0.9808415

00:09:06.070 --> 00:09:07.975 additional findings such as air

NOTE Confidence: 0.9808415

00:09:07.975 --> 00:09:10.955 bronchograms or other signs of

NOTE Confidence: 0.9808415

00:09:11.255 --> 00:09:11.755 nearby

NOTE Confidence: 0.99879986

00:09:12.135 --> 00:09:13.035 lung consolidation.

NOTE Confidence: 0.9931189

00:09:15.735 --> 00:09:16.855 So here's a good example

NOTE Confidence: 0.9931189

00:09:16.855 --> 00:09:17.975 of what I'm talking about.

NOTE Confidence: 0.9931189

00:09:17.975 --> 00:09:19.015 This is a five year

NOTE Confidence: 0.9931189

00:09:19.015 --> 00:09:19.415 old,

NOTE Confidence: 0.98573303

00:09:19.895 --> 00:09:21.915 with, right upper lobe pneumonia

NOTE Confidence: 0.98573303

00:09:22.054 --> 00:09:22.715 as diagnosed

NOTE Confidence: 0.96662736

00:09:23.820 --> 00:09:25.179 by lung point of care

NOTE Confidence: 0.96662736

00:09:25.179 --> 00:09:25.679 ultrasound,

NOTE Confidence: 0.9203059

00:09:27.179 --> 00:09:29.260 with an essentially unaractable X-ray

NOTE Confidence: 0.9203059

00:09:29.260 --> 00:09:30.079 at the time.

NOTE Confidence: 0.99772567

00:09:30.620 --> 00:09:31.899 You can see where the

NOTE Confidence: 0.99772567

00:09:31.899 --> 00:09:34.079 arrow is placed on the

NOTE Confidence: 0.99772567

00:09:34.140 --> 00:09:35.025 ultrasound image.

NOTE Confidence: 0.99972224

00:09:35.585 --> 00:09:36.405 There is

NOTE Confidence: 0.9701743

00:09:37.105 --> 00:09:39.105 a confluence of b lines

NOTE Confidence: 0.9701743

00:09:39.105 --> 00:09:40.945 emanating from the pleura as

NOTE Confidence: 0.9701743

00:09:40.945 --> 00:09:42.385 this image is obtained over

NOTE Confidence: 0.9701743

00:09:42.385 --> 00:09:43.125 the posterior

NOTE Confidence: 0.944029

00:09:43.425 --> 00:09:45.184 upper lung zone. And here

NOTE Confidence: 0.944029

00:09:45.184 --> 00:09:46.865 there is a lesion which

NOTE Confidence: 0.944029

00:09:46.865 --> 00:09:48.645 is bigger than one centimeter

NOTE Confidence: 0.97659004

00:09:49.025 --> 00:09:50.245 that, represents

NOTE Confidence: 0.9706381

00:09:50.980 --> 00:09:52.440 potential aspiration pneumonia,

NOTE Confidence: 0.8598474

00:09:53.140 --> 00:09:54.440 that clinically this patient,

NOTE Confidence: 0.99339753

00:09:55.540 --> 00:09:56.980 had some risk factors for.

NOTE Confidence: 0.99339753

00:09:56.980 --> 00:09:57.380 So,

NOTE Confidence: 0.96980965

00:09:58.100 --> 00:09:59.559 although the X-ray was unremarkable,

NOTE Confidence: 0.9722907

00:10:00.180 --> 00:10:01.540 we did initiate a course

NOTE Confidence: 0.9722907

00:10:01.540 --> 00:10:02.900 of Augmentin, and I happened

NOTE Confidence: 0.9722907

00:10:02.900 --> 00:10:04.245 to call the mom, the

NOTE Confidence: 0.9722907

00:10:04.245 --> 00:10:05.525 next day or so who

NOTE Confidence: 0.9722907

00:10:05.525 --> 00:10:06.025 reported,

NOTE Confidence: 0.9672862

00:10:06.804 --> 00:10:08.405 improved fever and also,

NOTE Confidence: 0.952817

00:10:09.045 --> 00:10:10.325 improved work of breathing. So

NOTE Confidence: 0.952817

00:10:10.325 --> 00:10:11.684 we were, pretty happy with

NOTE Confidence: 0.952817

00:10:11.684 --> 00:10:12.425 this outcome,

NOTE Confidence: 0.98777944

00:10:12.885 --> 00:10:13.684 that we were able to

NOTE Confidence: 0.98777944

00:10:13.684 --> 00:10:15.605 use ultrasound to augment our

NOTE Confidence: 0.98777944

00:10:15.605 --> 00:10:16.505 physical exam,

NOTE Confidence: 0.97841305

00:10:16.885 --> 00:10:18.245 to provide the best possible,

NOTE Confidence: 0.97841305

00:10:18.485 --> 00:10:19.385 treatment recommendations

NOTE Confidence: 0.9521117

00:10:21.590 --> 00:10:23.350 for this family. And so

NOTE Confidence: 0.9521117

00:10:23.350 --> 00:10:24.790 here in this patient, it

NOTE Confidence: 0.9521117

00:10:24.790 --> 00:10:25.670 was a five week old

NOTE Confidence: 0.9521117

00:10:25.670 --> 00:10:27.030 with a left upper lobe

NOTE Confidence: 0.9521117

00:10:27.030 --> 00:10:29.610 infiltrate as diagnosed by X-ray.

NOTE Confidence: 0.9521117

00:10:29.750 --> 00:10:31.210 And you can see on

NOTE Confidence: 0.9521117

00:10:31.270 --> 00:10:32.934 ultrasound with the linea probe,

NOTE Confidence: 0.9110207

00:10:33.394 --> 00:10:34.675 there are confluent b lines

NOTE Confidence: 0.9110207

00:10:34.675 --> 00:10:36.355 which are spanning across multiple

NOTE Confidence: 0.9110207

00:10:36.355 --> 00:10:37.714 rib spaces. So they're it's

NOTE Confidence: 0.9110207

00:10:37.714 --> 00:10:38.615 not just emanating

NOTE Confidence: 0.9886891

00:10:39.074 --> 00:10:40.514 from a single focus or

NOTE Confidence: 0.9886891

00:10:40.514 --> 00:10:41.635 a single area of the

NOTE Confidence: 0.9886891

00:10:41.635 --> 00:10:43.495 pleura. And so this pattern

NOTE Confidence: 0.9886891

00:10:43.554 --> 00:10:44.855 where there is a larger,

NOTE Confidence: 0.99957407

00:10:45.235 --> 00:10:46.200 area of

NOTE Confidence: 0.9616969

00:10:46.520 --> 00:10:48.040 lung involvement is, of course,

NOTE Confidence: 0.9616969

00:10:48.040 --> 00:10:49.340 a more concerning finding.

NOTE Confidence: 0.92605895

00:10:49.880 --> 00:10:50.380 Requires,

NOTE Confidence: 0.99942344

00:10:50.920 --> 00:10:51.820 careful interpretation

NOTE Confidence: 0.9922925

00:10:52.280 --> 00:10:53.500 and, judicious

NOTE Confidence: 0.97769994

00:10:54.120 --> 00:10:55.640 next steps, especially in a

NOTE Confidence: 0.97769994

00:10:55.640 --> 00:10:56.840 patient that's so young.

NOTE Confidence: 0.98121417

00:10:57.559 --> 00:10:58.679 So if these findings are

NOTE Confidence: 0.98121417

00:10:58.679 --> 00:11:00.280 diffuse and seen, to all

NOTE Confidence: 0.98121417

00:11:00.280 --> 00:11:01.800 lung, then I would interpret

NOTE Confidence: 0.98121417

00:11:01.800 --> 00:11:02.965 as, bronchiolitis

NOTE Confidence: 0.9963735

00:11:03.425 --> 00:11:03.925 or

NOTE Confidence: 0.9822116

00:11:04.304 --> 00:11:05.925 diffuse multifocal pneumonia,

NOTE Confidence: 0.9860984

00:11:06.385 --> 00:11:07.745 as opposed to in this

NOTE Confidence: 0.9860984

00:11:07.745 --> 00:11:09.825 case, it was asymmetric, so

NOTE Confidence: 0.9860984

00:11:09.825 --> 00:11:11.665 this would suggest a more

NOTE Confidence: 0.9860984

00:11:11.665 --> 00:11:13.825 focal process of lung tissue

NOTE Confidence: 0.9860984

00:11:13.825 --> 00:11:14.325 consolidation.

NOTE Confidence: 0.9966625

00:11:15.665 --> 00:11:17.370 Here is another example using

NOTE Confidence: 0.9966625

00:11:17.770 --> 00:11:18.350 a curvilinear

NOTE Confidence: 0.93865055

00:11:18.650 --> 00:11:19.150 probe,

NOTE Confidence: 0.9842365

00:11:19.690 --> 00:11:20.089 as,

NOTE Confidence: 0.9386467

00:11:20.650 --> 00:11:22.250 the this patient is having,

NOTE Confidence: 0.99596965

00:11:22.650 --> 00:11:23.150 assessment

NOTE Confidence: 0.9505555

00:11:23.610 --> 00:11:24.809 of the lung basis for

NOTE Confidence: 0.9505555

00:11:24.890 --> 00:11:26.270 likely for pleural effusion,

NOTE Confidence: 0.9044264

00:11:26.730 --> 00:11:27.230 X-ray,

NOTE Confidence: 0.95617306

00:11:27.929 --> 00:11:29.529 consistent with the right middle

NOTE Confidence: 0.95617306

00:11:29.529 --> 00:11:31.105 lobe infiltrate, and you can

NOTE Confidence: 0.95617306

00:11:31.105 --> 00:11:32.165 once again see,

NOTE Confidence: 0.8442262

00:11:33.425 --> 00:11:34.725 confluent b lines,

NOTE Confidence: 0.99825627

00:11:35.265 --> 00:11:35.765 spanning

NOTE Confidence: 0.9840222

00:11:36.304 --> 00:11:36.804 multiple,

NOTE Confidence: 0.98306483

00:11:37.265 --> 00:11:38.005 rib spaces

NOTE Confidence: 0.9934367

00:11:38.464 --> 00:11:39.845 in this patient with pneumonia.

NOTE Confidence: 0.9934367

00:11:40.144 --> 00:11:41.265 So the trade off here

NOTE Confidence: 0.9934367

00:11:41.265 --> 00:11:43.365 is, penetration for resolution.

NOTE Confidence: 0.9273634

00:11:44.065 --> 00:11:45.720 This is a cover linear

NOTE Confidence: 0.9273634

00:11:45.720 --> 00:11:47.480 probe eval probably for pleural

NOTE Confidence: 0.9273634

00:11:47.480 --> 00:11:48.940 effusion, which is not present.

NOTE Confidence: 0.99495757

00:11:49.320 --> 00:11:50.760 So although we don't see

NOTE Confidence: 0.99495757

00:11:50.760 --> 00:11:53.800 the pleura as large and

NOTE Confidence: 0.99495757

00:11:53.800 --> 00:11:56.200 as crisply as we've been,

NOTE Confidence: 0.99216306

00:11:56.600 --> 00:11:58.220 viewing with the linear probe,

NOTE Confidence: 0.99216306

00:11:58.440 --> 00:11:59.240 you can still get a

NOTE Confidence: 0.99216306

00:11:59.240 --> 00:12:00.585 sense that these b lines

NOTE Confidence: 0.99216306

00:12:00.745 --> 00:12:01.705 dip all the way down

NOTE Confidence: 0.99216306

00:12:01.705 --> 00:12:02.505 to the bottom of the

NOTE Confidence: 0.99216306

00:12:02.505 --> 00:12:03.804 screen even when

NOTE Confidence: 0.9997795

00:12:04.105 --> 00:12:06.265 a lower frequency transducer is

NOTE Confidence: 0.9997795

00:12:06.265 --> 00:12:07.885 used to scan the lungs.

NOTE Confidence: 0.9479926

00:12:10.745 --> 00:12:11.865 And finally, here's a six

NOTE Confidence: 0.9479926

00:12:11.865 --> 00:12:13.945 year old drowning victim who

NOTE Confidence: 0.9479926

00:12:13.945 --> 00:12:16.110 arrived vomiting, pool water, but

NOTE Confidence: 0.9479926

00:12:16.110 --> 00:12:17.010 was not intubated at the

NOTE Confidence: 0.9479926

00:12:17.309 --> 00:12:18.690 time of the scan.

NOTE Confidence: 0.9959682

00:12:19.950 --> 00:12:21.089 You can see that there's

NOTE Confidence: 0.9234196

00:12:21.390 --> 00:12:23.470 diffused b lines, seen throughout

NOTE Confidence: 0.9234196

00:12:23.470 --> 00:12:25.329 all lung fields. And so,

NOTE Confidence: 0.9444382

00:12:25.870 --> 00:12:27.250 these are some extra findings

NOTE Confidence: 0.9444382

00:12:27.470 --> 00:12:29.390 on linear probe interrogation of

NOTE Confidence: 0.9444382

00:12:29.390 --> 00:12:30.269 the right lung and the

NOTE Confidence: 0.9444382

00:12:30.269 --> 00:12:31.375 left lung. And the b

NOTE Confidence: 0.9444382

00:12:31.375 --> 00:12:32.894 lines can be seen when

NOTE Confidence: 0.9444382

00:12:32.894 --> 00:12:34.834 using the cardiac or phasorae

NOTE Confidence: 0.9444382

00:12:34.894 --> 00:12:36.415 probe as well. Although the

NOTE Confidence: 0.9444382

00:12:36.415 --> 00:12:37.694 b line artifacts in this

NOTE Confidence: 0.9444382

00:12:37.694 --> 00:12:39.235 case actually stem,

NOTE Confidence: 0.999757

00:12:39.615 --> 00:12:40.995 from the diaphragm

NOTE Confidence: 0.9183131

00:12:41.454 --> 00:12:43.154 with otherwise good mirror imaging

NOTE Confidence: 0.9183131

00:12:43.214 --> 00:12:45.375 and no thoracic spine sign.

NOTE Confidence: 0.9183131

00:12:45.375 --> 00:12:46.710 So this would,

NOTE Confidence: 0.8021748

00:12:47.350 --> 00:12:47.850 exclude,

NOTE Confidence: 0.9963729

00:12:48.309 --> 00:12:49.690 pleural effusion or

NOTE Confidence: 0.99262846

00:12:50.070 --> 00:12:51.670 any lower lobe pneumonia in

NOTE Confidence: 0.99262846

00:12:51.670 --> 00:12:52.330 this area.

NOTE Confidence: 0.9707894

00:12:55.429 --> 00:12:56.630 And so here in the

NOTE Confidence: 0.9707894

00:12:56.630 --> 00:12:57.030 next,

NOTE Confidence: 0.9555906

00:12:57.670 --> 00:12:59.110 set of images that we're

NOTE Confidence: 0.9555906

00:12:59.110 --> 00:12:59.850 gonna look,

NOTE Confidence: 0.9514113

00:13:00.230 --> 00:13:01.910 at will be more advanced

NOTE Confidence: 0.9514113

00:13:01.910 --> 00:13:02.410 findings,

NOTE Confidence: 0.9768224

00:13:03.485 --> 00:13:05.645 for pneumonia. And so these

NOTE Confidence: 0.9768224

00:13:05.645 --> 00:13:06.145 include

NOTE Confidence: 0.9638448

00:13:07.085 --> 00:13:08.765 air bronchograms, which can either

NOTE Confidence: 0.9638448

00:13:08.765 --> 00:13:09.665 be be static

NOTE Confidence: 0.8858539

00:13:10.365 --> 00:13:11.105 or dynamic,

NOTE Confidence: 0.89969784

00:13:12.684 --> 00:13:13.804 the presence of a SHRED

NOTE Confidence: 0.89969784

00:13:13.804 --> 00:13:16.545 sign, plural SHRED sign, and

NOTE Confidence: 0.89969784

00:13:16.765 --> 00:13:17.265 hepatization

NOTE Confidence: 0.99903303

00:13:17.725 --> 00:13:18.660 of lung tissue.

NOTE Confidence: 0.934989

00:13:22.019 --> 00:13:22.980 So in this three year

NOTE Confidence: 0.934989

00:13:22.980 --> 00:13:24.420 old patient with a leftover

NOTE Confidence: 0.934989

00:13:24.420 --> 00:13:24.920 pneumonia,

NOTE Confidence: 0.962138

00:13:25.620 --> 00:13:27.220 by X-ray, which can be

NOTE Confidence: 0.962138

00:13:27.220 --> 00:13:29.220 seen, pretty clearly on, the

NOTE Confidence: 0.962138

00:13:29.220 --> 00:13:30.279 lateral projection,

NOTE Confidence: 0.8966837

00:13:31.459 --> 00:13:33.300 the lung ultrasound shows static

NOTE Confidence: 0.8966837

00:13:33.300 --> 00:13:34.875 or bronchograms, which are are

NOTE Confidence: 0.8966837

00:13:34.875 --> 00:13:37.054 created by these white punctate,

NOTE Confidence: 0.98233

00:13:37.835 --> 00:13:38.335 spots,

NOTE Confidence: 0.94123405

00:13:39.195 --> 00:13:41.035 where you would otherwise expect

NOTE Confidence: 0.94123405

00:13:41.035 --> 00:13:41.695 to have,

NOTE Confidence: 0.8171131

00:13:42.075 --> 00:13:43.355 a lines if,

NOTE Confidence: 0.9867987

00:13:44.075 --> 00:13:45.595 there was normal aerated lung

NOTE Confidence: 0.9867987

00:13:45.595 --> 00:13:47.115 tissue. And I really love

NOTE Confidence: 0.9867987

00:13:47.115 --> 00:13:48.475 this clip because you can

NOTE Confidence: 0.9867987

00:13:48.475 --> 00:13:48.929 see,

NOTE Confidence: 0.9681812

00:13:49.330 --> 00:13:50.130 towards the left of the

NOTE Confidence: 0.9681812

00:13:50.130 --> 00:13:51.809 screen above the rib, there's

NOTE Confidence: 0.9681812

00:13:51.809 --> 00:13:53.830 an area of multiple beelines

NOTE Confidence: 0.9681812

00:13:54.050 --> 00:13:55.110 with some confluence,

NOTE Confidence: 0.9995975

00:13:56.050 --> 00:13:56.550 which

NOTE Confidence: 0.96659786

00:13:56.929 --> 00:13:58.050 if I had seen that

NOTE Confidence: 0.96659786

00:13:58.050 --> 00:13:59.170 alone, I would have been

NOTE Confidence: 0.96659786

00:13:59.170 --> 00:14:01.429 suspicious about surrounding atelectasis

NOTE Confidence: 0.99885905

00:14:01.890 --> 00:14:03.429 or lung tissue consolidation.

NOTE Confidence: 0.9498965

00:14:06.035 --> 00:14:07.555 Static or bronchograms can be

NOTE Confidence: 0.9498965

00:14:07.555 --> 00:14:09.255 tricky because they could be

NOTE Confidence: 0.9498965

00:14:09.315 --> 00:14:10.355 seen in both,

NOTE Confidence: 0.98656875

00:14:11.155 --> 00:14:13.475 pneumonia and atelectasis, so you

NOTE Confidence: 0.98656875

00:14:13.475 --> 00:14:14.515 really have to correlate this

NOTE Confidence: 0.98656875

00:14:14.515 --> 00:14:15.875 finding to the clinical exam.

NOTE Confidence: 0.98656875

00:14:15.875 --> 00:14:17.015 And these are probably

NOTE Confidence: 0.9647019

00:14:17.429 --> 00:14:18.630 instances where you wanna get

NOTE Confidence: 0.9647019

00:14:18.630 --> 00:14:19.750 a chest film as well.

NOTE Confidence: 0.9647019

00:14:19.750 --> 00:14:20.870 And together with the lung

NOTE Confidence: 0.9647019

00:14:20.870 --> 00:14:22.630 ultrasound, you can make a

NOTE Confidence: 0.9647019

00:14:22.630 --> 00:14:24.010 a more accurate interpretation

NOTE Confidence: 0.9998207

00:14:24.470 --> 00:14:26.250 of the ultrasound findings.

NOTE Confidence: 0.99528617

00:14:26.870 --> 00:14:29.130 In contrast, dynamic air bronchograms

NOTE Confidence: 0.9276325

00:14:29.670 --> 00:14:31.254 as seen here, which are

NOTE Confidence: 0.9276325

00:14:31.254 --> 00:14:31.754 reflected

NOTE Confidence: 0.945688

00:14:32.134 --> 00:14:34.935 by fluid, mucus, phlegm, buildup

NOTE Confidence: 0.945688

00:14:34.935 --> 00:14:36.134 within the bronchi and the

NOTE Confidence: 0.945688

00:14:36.134 --> 00:14:36.634 bronchioles,

NOTE Confidence: 0.99699515

00:14:37.175 --> 00:14:38.694 are the most specific finding

NOTE Confidence: 0.99699515

00:14:38.694 --> 00:14:40.774 for pediatric pneumonia by lung

NOTE Confidence: 0.99699515

00:14:40.774 --> 00:14:41.274 ultrasound.

NOTE Confidence: 0.99790114

00:14:41.654 --> 00:14:42.714 However, the incidence

NOTE Confidence: 0.9897338

00:14:43.095 --> 00:14:45.035 of finding dynamic air bronchograms

NOTE Confidence: 0.9696119

00:14:45.930 --> 00:14:47.690 is relatively low. But you

NOTE Confidence: 0.9696119

00:14:47.690 --> 00:14:48.730 can see here on this

NOTE Confidence: 0.9696119

00:14:48.730 --> 00:14:49.950 clip, motion

NOTE Confidence: 0.99900055

00:14:50.490 --> 00:14:51.630 of the

NOTE Confidence: 0.985343

00:14:52.010 --> 00:14:54.170 fluid filled bronchi, and you

NOTE Confidence: 0.985343

00:14:54.170 --> 00:14:55.710 can almost make out

NOTE Confidence: 0.9933347

00:14:56.170 --> 00:14:58.090 the airway tree. And so

NOTE Confidence: 0.9933347

00:14:58.090 --> 00:14:59.390 this is a great example

NOTE Confidence: 0.9933347

00:14:59.450 --> 00:14:59.690 of,

NOTE Confidence: 0.9963942

00:15:00.385 --> 00:15:01.345 what you would be looking

NOTE Confidence: 0.9963942

00:15:01.345 --> 00:15:02.805 for in terms of dynamic

NOTE Confidence: 0.9963942

00:15:02.945 --> 00:15:03.685 air bronchograms,

NOTE Confidence: 0.99583036

00:15:04.225 --> 00:15:05.024 which have been found to

NOTE Confidence: 0.99583036

00:15:05.024 --> 00:15:06.385 be the most specific finding

NOTE Confidence: 0.99583036

00:15:06.385 --> 00:15:07.204 for pneumonia,

NOTE Confidence: 0.99890584

00:15:07.584 --> 00:15:08.805 using lung ultrasound.

NOTE Confidence: 0.9800815

00:15:10.065 --> 00:15:11.024 Here we have a six

NOTE Confidence: 0.9800815

00:15:11.024 --> 00:15:13.110 year old with, sickle cell

NOTE Confidence: 0.9800815

00:15:13.350 --> 00:15:15.130 disease and acute chest syndrome

NOTE Confidence: 0.8882703

00:15:15.510 --> 00:15:16.010 as,

NOTE Confidence: 0.9649887

00:15:16.470 --> 00:15:17.529 seen by X-ray,

NOTE Confidence: 0.9788157

00:15:19.430 --> 00:15:20.649 noted to have bibasilar

NOTE Confidence: 0.881619

00:15:20.950 --> 00:15:22.010 airspace opacities.

NOTE Confidence: 0.9861777

00:15:22.630 --> 00:15:23.130 And,

NOTE Confidence: 0.99421436

00:15:24.390 --> 00:15:25.910 of course, the differential would

NOTE Confidence: 0.99421436

00:15:25.910 --> 00:15:28.089 be pneumonia versus atelectasis versus

NOTE Confidence: 0.99421436

00:15:28.265 --> 00:15:29.165 vaso occlusive

NOTE Confidence: 0.9566889

00:15:29.545 --> 00:15:30.045 changes.

NOTE Confidence: 0.99537903

00:15:30.585 --> 00:15:31.325 By ultrasound,

NOTE Confidence: 0.9930455

00:15:32.904 --> 00:15:33.885 you can see,

NOTE Confidence: 0.84442896

00:15:34.904 --> 00:15:36.125 plural disruption

NOTE Confidence: 0.97926027

00:15:36.585 --> 00:15:38.425 and SHRED sign in both

NOTE Confidence: 0.97926027

00:15:38.425 --> 00:15:39.165 the right

NOTE Confidence: 0.99324316

00:15:39.625 --> 00:15:41.490 and the left posterior lung

NOTE Confidence: 0.99324316

00:15:41.490 --> 00:15:41.990 fields.

NOTE Confidence: 0.9479749

00:15:42.930 --> 00:15:43.430 The,

NOTE Confidence: 0.9908737

00:15:44.130 --> 00:15:46.230 pathology on the right is

NOTE Confidence: 0.9908737

00:15:46.450 --> 00:15:47.510 somewhat smaller.

NOTE Confidence: 0.9862709

00:15:48.050 --> 00:15:48.550 Here

NOTE Confidence: 0.8287258

00:15:49.010 --> 00:15:49.910 you can see,

NOTE Confidence: 0.9838061

00:15:50.450 --> 00:15:51.410 towards the right of the

NOTE Confidence: 0.9838061

00:15:51.410 --> 00:15:53.170 screen, the diaphragm, the double

NOTE Confidence: 0.9838061

00:15:53.170 --> 00:15:54.230 line of the diaphragm

NOTE Confidence: 0.9606878

00:15:55.095 --> 00:15:56.214 with the liver right below

NOTE Confidence: 0.9606878

00:15:56.214 --> 00:15:56.714 it.

NOTE Confidence: 0.96852875

00:15:57.095 --> 00:15:58.475 And you can see disruption

NOTE Confidence: 0.96852875

00:15:58.774 --> 00:16:00.475 and shred of the pleura

NOTE Confidence: 0.96852875

00:16:00.535 --> 00:16:02.455 with, b lines that are

NOTE Confidence: 0.96852875

00:16:02.455 --> 00:16:03.435 diving down,

NOTE Confidence: 0.94970846

00:16:03.975 --> 00:16:05.595 from the pleural interface.

NOTE Confidence: 0.97579885

00:16:06.295 --> 00:16:07.735 And so the lesion on

NOTE Confidence: 0.97579885

00:16:07.735 --> 00:16:09.334 the left is actually, much,

NOTE Confidence: 0.97579885

00:16:09.334 --> 00:16:10.154 much bigger.

NOTE Confidence: 0.9432831

00:16:10.490 --> 00:16:11.769 There, you don't see that

NOTE Confidence: 0.9432831

00:16:11.769 --> 00:16:13.230 clear, crisp pleura,

NOTE Confidence: 0.97169024

00:16:13.610 --> 00:16:15.130 that echogenic line between the

NOTE Confidence: 0.97169024

00:16:15.130 --> 00:16:15.870 rib spaces,

NOTE Confidence: 0.9997438

00:16:16.810 --> 00:16:18.350 because there is tissue

NOTE Confidence: 0.9990842

00:16:18.810 --> 00:16:20.510 consolidation there instead.

NOTE Confidence: 0.9707048

00:16:21.050 --> 00:16:21.290 So,

NOTE Confidence: 0.95878994

00:16:22.295 --> 00:16:23.915 the shred sign is actually

NOTE Confidence: 0.9372451

00:16:24.375 --> 00:16:25.755 far lower on the screen

NOTE Confidence: 0.9372451

00:16:25.815 --> 00:16:26.315 about

NOTE Confidence: 0.9975252

00:16:26.775 --> 00:16:27.995 where the four centimeter

NOTE Confidence: 0.97623694

00:16:28.935 --> 00:16:31.175 marker is, and, this is

NOTE Confidence: 0.97623694

00:16:31.175 --> 00:16:32.855 correlated with the x-ray that

NOTE Confidence: 0.97623694

00:16:32.855 --> 00:16:33.975 appeared to be far worse

NOTE Confidence: 0.97623694

00:16:33.975 --> 00:16:35.255 on the left compared to

NOTE Confidence: 0.97623694

00:16:35.255 --> 00:16:35.915 the right.

NOTE Confidence: 0.9968933

00:16:39.240 --> 00:16:40.120 And here we have a

NOTE Confidence: 0.9968933

00:16:40.120 --> 00:16:41.500 twelve year old with asthma,

NOTE Confidence: 0.94736004

00:16:42.440 --> 00:16:45.180 who also presented with, respiratory

NOTE Confidence: 0.94736004

00:16:45.320 --> 00:16:46.860 distress found to have pneumonia

NOTE Confidence: 0.94736004

00:16:47.000 --> 00:16:47.820 by x-ray.

NOTE Confidence: 0.9560357

00:16:48.200 --> 00:16:49.960 And on lung ultrasound, you

NOTE Confidence: 0.9560357

00:16:49.960 --> 00:16:50.780 can see,

NOTE Confidence: 0.9857373

00:16:51.765 --> 00:16:52.985 clear hepatization

NOTE Confidence: 0.9992423

00:16:53.605 --> 00:16:54.825 of the lung tissue.

NOTE Confidence: 0.99862623

00:16:55.285 --> 00:16:55.785 So

NOTE Confidence: 0.9628801

00:16:56.404 --> 00:16:57.605 the probe in this case

NOTE Confidence: 0.9628801

00:16:57.605 --> 00:16:59.045 is a phased array probe,

NOTE Confidence: 0.9628801

00:16:59.045 --> 00:17:00.165 which is placed in the

NOTE Confidence: 0.9628801

00:17:00.165 --> 00:17:01.464 left anterior

NOTE Confidence: 0.982105

00:17:01.925 --> 00:17:03.765 zone above the heart. As

NOTE Confidence: 0.982105

00:17:03.765 --> 00:17:04.484 you can see in the

NOTE Confidence: 0.982105

00:17:04.484 --> 00:17:05.925 ultrasound image, the heart is

NOTE Confidence: 0.982105

00:17:05.925 --> 00:17:06.390 beating,

NOTE Confidence: 0.9542193

00:17:06.869 --> 00:17:08.390 on the right side and

NOTE Confidence: 0.9542193

00:17:08.390 --> 00:17:09.690 what appears to be liver,

NOTE Confidence: 0.9542193

00:17:09.990 --> 00:17:11.350 above it. But in fact,

NOTE Confidence: 0.9542193

00:17:11.350 --> 00:17:12.330 this is diseased,

NOTE Confidence: 0.9974855

00:17:12.790 --> 00:17:13.609 lung tissue,

NOTE Confidence: 0.9997939

00:17:13.910 --> 00:17:14.650 which would

NOTE Confidence: 0.9976244

00:17:15.030 --> 00:17:16.890 be reflective of more advanced

NOTE Confidence: 0.9976244

00:17:16.950 --> 00:17:17.450 pneumonia.

NOTE Confidence: 0.95660573

00:17:18.150 --> 00:17:18.650 So,

NOTE Confidence: 0.8992068

00:17:19.475 --> 00:17:20.615 a lines are missing.

NOTE Confidence: 0.9789116

00:17:20.915 --> 00:17:22.775 And because the,

NOTE Confidence: 0.9960259

00:17:23.475 --> 00:17:25.335 disease process is parenchymal

NOTE Confidence: 0.9906401

00:17:26.035 --> 00:17:27.235 and not solely at the

NOTE Confidence: 0.9906401

00:17:27.235 --> 00:17:29.395 level of the alveoli or

NOTE Confidence: 0.9906401

00:17:29.395 --> 00:17:30.135 the interstitium,

NOTE Confidence: 0.9849233

00:17:30.675 --> 00:17:31.635 you do not see any

NOTE Confidence: 0.9849233

00:17:31.635 --> 00:17:32.915 b lines on this image,

NOTE Confidence: 0.9849233

00:17:32.915 --> 00:17:33.575 but just,

NOTE Confidence: 0.880564

00:17:35.150 --> 00:17:35.650 advanced,

NOTE Confidence: 0.91811967

00:17:36.270 --> 00:17:37.490 lung tissue consolidation.

NOTE Confidence: 0.96701294

00:17:38.270 --> 00:17:40.190 Otherwise known as hepatization because

NOTE Confidence: 0.96701294

00:17:40.190 --> 00:17:41.090 of the similarities

NOTE Confidence: 0.99672735

00:17:41.470 --> 00:17:42.210 in appearance

NOTE Confidence: 0.9918943

00:17:42.590 --> 00:17:44.270 when comparing this to the

NOTE Confidence: 0.9918943

00:17:44.270 --> 00:17:47.150 normal appearance of liver by

NOTE Confidence: 0.9918943

00:17:47.150 --> 00:17:47.650 ultrasound.

NOTE Confidence: 0.98116845

00:17:50.565 --> 00:17:51.845 So we don't know what

NOTE Confidence: 0.98116845

00:17:51.845 --> 00:17:52.325 the,

NOTE Confidence: 0.97630644

00:17:52.645 --> 00:17:54.085 future impact of lung pocus

NOTE Confidence: 0.97630644

00:17:54.085 --> 00:17:54.725 will be.

NOTE Confidence: 0.9767039

00:17:55.205 --> 00:17:56.265 I believe,

NOTE Confidence: 0.9873336

00:17:56.565 --> 00:17:58.345 there are three potential outcomes.

NOTE Confidence: 0.9873336

00:17:58.405 --> 00:17:59.465 One, with integration

NOTE Confidence: 0.9851351

00:18:00.659 --> 00:18:02.100 of the clinical exam, we

NOTE Confidence: 0.9851351

00:18:02.100 --> 00:18:04.039 hope that pediatric pneumonia diagnosis

NOTE Confidence: 0.9851351

00:18:04.179 --> 00:18:05.240 can become more reliable.

NOTE Confidence: 0.9984882

00:18:05.619 --> 00:18:06.919 Ideally, we can make

NOTE Confidence: 0.9876941

00:18:07.539 --> 00:18:08.600 a earlier diagnosis

NOTE Confidence: 0.90436614

00:18:09.139 --> 00:18:11.399 and reduce the overall burden

NOTE Confidence: 0.9451869

00:18:11.859 --> 00:18:13.320 of, chest radiography.

NOTE Confidence: 0.99986583

00:18:14.305 --> 00:18:16.165 Another potential impact is

NOTE Confidence: 0.89346075

00:18:16.465 --> 00:18:16.965 overprescription

NOTE Confidence: 0.99989337

00:18:17.425 --> 00:18:18.244 of antibiotics

NOTE Confidence: 0.92865217

00:18:18.545 --> 00:18:19.045 as

NOTE Confidence: 0.9910011

00:18:19.585 --> 00:18:21.125 there's no way to

NOTE Confidence: 0.99895877

00:18:21.905 --> 00:18:23.285 feasibly or reliably

NOTE Confidence: 0.9964354

00:18:23.585 --> 00:18:25.665 differentiate a viral pneumonia from

NOTE Confidence: 0.9964354

00:18:25.665 --> 00:18:26.805 a bacterial pneumonia,

NOTE Confidence: 0.9856626

00:18:27.505 --> 00:18:28.244 by ultrasound.

NOTE Confidence: 0.9109812

00:18:28.549 --> 00:18:30.250 And finally, there's a possibility

NOTE Confidence: 0.9109812

00:18:30.309 --> 00:18:31.690 that we may actually

NOTE Confidence: 0.98126996

00:18:32.070 --> 00:18:34.230 prescribe less antibiotics given, again,

NOTE Confidence: 0.98126996

00:18:34.230 --> 00:18:34.890 the limitations

NOTE Confidence: 0.9650607

00:18:35.350 --> 00:18:36.169 in the

NOTE Confidence: 0.9388747

00:18:36.630 --> 00:18:38.330 physical exam and,

NOTE Confidence: 0.98965055

00:18:39.510 --> 00:18:41.270 the lack of reliability that

NOTE Confidence: 0.98965055

00:18:41.270 --> 00:18:42.250 X-ray has,

NOTE Confidence: 0.9978192

00:18:42.880 --> 00:18:43.305 to

NOTE Confidence: 0.9984213

00:18:43.865 --> 00:18:45.225 differentiate a viral from a

NOTE Confidence: 0.9984213

00:18:45.225 --> 00:18:46.445 bacterial process.

NOTE Confidence: 0.98139465

00:18:48.665 --> 00:18:49.945 So this would be example

NOTE Confidence: 0.98139465

00:18:49.945 --> 00:18:51.165 of the first outcome,

NOTE Confidence: 0.90406966

00:18:52.185 --> 00:18:53.565 greater position and,

NOTE Confidence: 0.95308644

00:18:54.345 --> 00:18:56.425 more accurate diagnosis. So six

NOTE Confidence: 0.95308644

00:18:56.425 --> 00:18:57.645 year old male with hemoglobin

NOTE Confidence: 0.95308644

00:18:57.865 --> 00:18:58.410 SC presented

NOTE Confidence: 0.8781474

00:18:59.530 --> 00:19:00.750 with fever for two days

NOTE Confidence: 0.8781474

00:19:00.810 --> 00:19:02.250 and shortness of breath. An

NOTE Confidence: 0.8781474

00:19:02.250 --> 00:19:03.609 exam had some slight elevation

NOTE Confidence: 0.8781474

00:19:03.609 --> 00:19:04.970 in the heart rate, but

NOTE Confidence: 0.8781474

00:19:04.970 --> 00:19:06.590 otherwise, normal oxygen saturation.

NOTE Confidence: 0.94764173

00:19:07.210 --> 00:19:09.369 Exam with wheezing and diminished

NOTE Confidence: 0.94764173

00:19:09.369 --> 00:19:10.490 breath sounds on the left

NOTE Confidence: 0.94764173

00:19:10.490 --> 00:19:12.570 side. A typical workup was

NOTE Confidence: 0.94764173

00:19:12.570 --> 00:19:13.325 done for,

NOTE Confidence: 0.9594837

00:19:14.024 --> 00:19:15.164 SC disease,

NOTE Confidence: 0.9410902

00:19:15.945 --> 00:19:17.304 with, fever to include a

NOTE Confidence: 0.9410902

00:19:17.304 --> 00:19:19.404 chest X-ray and, lab work,

NOTE Confidence: 0.99364847

00:19:19.705 --> 00:19:21.565 which revealed, no leukocytosis,

NOTE Confidence: 0.9990199

00:19:22.505 --> 00:19:23.865 on the X-ray. There was

NOTE Confidence: 0.9990199

00:19:23.865 --> 00:19:24.365 no

NOTE Confidence: 0.99921733

00:19:25.080 --> 00:19:25.820 acute cardiothoracic

NOTE Confidence: 0.9882938

00:19:26.520 --> 00:19:28.779 abnormality as per the radiologist,

NOTE Confidence: 0.99535024

00:19:29.400 --> 00:19:29.900 interpretation.

NOTE Confidence: 0.9681825

00:19:32.440 --> 00:19:33.960 However, by lung focus, there

NOTE Confidence: 0.9681825

00:19:33.960 --> 00:19:36.039 is clear SHRED sign in

NOTE Confidence: 0.9681825

00:19:36.039 --> 00:19:37.419 the left posterior

NOTE Confidence: 0.9371003

00:19:37.795 --> 00:19:38.455 lung field

NOTE Confidence: 0.9404178

00:19:38.755 --> 00:19:39.255 with

NOTE Confidence: 0.9904645

00:19:39.555 --> 00:19:41.494 disruption of the pleura and,

NOTE Confidence: 0.6798014

00:19:41.955 --> 00:19:42.615 B lines,

NOTE Confidence: 0.96999794

00:19:43.315 --> 00:19:45.975 emanating from this jagged pleural

NOTE Confidence: 0.96999794

00:19:46.195 --> 00:19:46.695 edge.

NOTE Confidence: 0.93978745

00:19:48.435 --> 00:19:49.980 This patient was subsequently admitted

NOTE Confidence: 0.93978745

00:19:50.059 --> 00:19:51.980 with earlier recognition of acute

NOTE Confidence: 0.93978745

00:19:51.980 --> 00:19:53.040 chest on,

NOTE Confidence: 0.9809799

00:19:53.500 --> 00:19:55.359 given ceftriaxone and azithromycin

NOTE Confidence: 0.954639

00:19:55.900 --> 00:19:56.799 as per our,

NOTE Confidence: 0.94993216

00:19:57.500 --> 00:19:58.000 hematology,

NOTE Confidence: 0.99122024

00:19:59.179 --> 00:20:00.160 treatment recommendations

NOTE Confidence: 0.90606666

00:20:00.619 --> 00:20:02.445 and, incurred a three day

NOTE Confidence: 0.90606666

00:20:02.524 --> 00:20:03.024 hospitalization.

NOTE Confidence: 0.8996812

00:20:03.884 --> 00:20:05.585 Luckily, did not require any,

NOTE Confidence: 0.96618116

00:20:06.125 --> 00:20:08.205 PRBC transfusion and had multiple

NOTE Confidence: 0.96618116

00:20:08.205 --> 00:20:09.424 negative blood cultures.

NOTE Confidence: 0.9892761

00:20:10.125 --> 00:20:11.884 This case was, several years

NOTE Confidence: 0.9892761

00:20:11.884 --> 00:20:13.585 before we were routinely obtaining

NOTE Confidence: 0.9892761

00:20:13.644 --> 00:20:14.144 procalcitonin

NOTE Confidence: 0.98626745

00:20:14.619 --> 00:20:15.279 to help,

NOTE Confidence: 0.9559069

00:20:15.899 --> 00:20:17.820 risk stratify bacterial versus viral

NOTE Confidence: 0.9559069

00:20:17.820 --> 00:20:19.820 pneumonia, and, a viral swab

NOTE Confidence: 0.9559069

00:20:19.820 --> 00:20:20.559 was not performed,

NOTE Confidence: 0.9651459

00:20:21.020 --> 00:20:22.299 as this patient was managed

NOTE Confidence: 0.9651459

00:20:22.299 --> 00:20:23.260 in the hospital who did

NOTE Confidence: 0.9651459

00:20:23.260 --> 00:20:24.480 well and,

NOTE Confidence: 0.99489975

00:20:25.100 --> 00:20:26.775 completed his course for community

NOTE Confidence: 0.99489975

00:20:26.775 --> 00:20:28.315 acquired pneumonia as an outpatient.

NOTE Confidence: 0.97365373

00:20:31.255 --> 00:20:33.095 Here's another, example of how

NOTE Confidence: 0.97365373

00:20:33.095 --> 00:20:34.535 we may provide more efficient

NOTE Confidence: 0.97365373

00:20:34.535 --> 00:20:35.515 care with lumbucus.

NOTE Confidence: 0.9762882

00:20:35.975 --> 00:20:36.455 So,

NOTE Confidence: 0.786653

00:20:36.855 --> 00:20:37.755 in this,

NOTE Confidence: 0.9467169

00:20:38.960 --> 00:20:40.080 clinical case, a nine month

NOTE Confidence: 0.9467169

00:20:40.080 --> 00:20:41.220 old presented respiratory

NOTE Confidence: 0.97237504

00:20:41.520 --> 00:20:43.040 distress, and this was the

NOTE Confidence: 0.97237504

00:20:43.040 --> 00:20:44.160 third ER visit for the

NOTE Confidence: 0.97237504

00:20:44.160 --> 00:20:46.000 same illness. Had a prior

NOTE Confidence: 0.97237504

00:20:46.000 --> 00:20:46.500 rhinovirus

NOTE Confidence: 0.9204423

00:20:46.800 --> 00:20:48.340 positive test and an x-ray,

NOTE Confidence: 0.9204423

00:20:48.400 --> 00:20:48.900 which,

NOTE Confidence: 0.999592

00:20:49.920 --> 00:20:50.820 during the first

NOTE Confidence: 0.96803

00:20:51.605 --> 00:20:52.885 visit was more in keeping

NOTE Confidence: 0.96803

00:20:52.885 --> 00:20:54.905 with, perihilar and peribronchial

NOTE Confidence: 0.89519477

00:20:55.765 --> 00:20:58.725 intercision markings, likely, viral, airway

NOTE Confidence: 0.89519477

00:20:58.725 --> 00:20:59.225 inflammation,

NOTE Confidence: 0.9924996

00:21:00.325 --> 00:21:01.385 most likely bronchiolitis.

NOTE Confidence: 0.95418864

00:21:01.685 --> 00:21:03.780 However, ongoing fevers, cough, and

NOTE Confidence: 0.95418864

00:21:03.780 --> 00:21:05.300 some post tussle emesis and

NOTE Confidence: 0.95418864

00:21:05.300 --> 00:21:06.260 increase in work of breathing,

NOTE Confidence: 0.95418864

00:21:06.260 --> 00:21:07.140 and there was a strong

NOTE Confidence: 0.95418864

00:21:07.140 --> 00:21:08.359 family history of asthma.

NOTE Confidence: 0.9890224

00:21:10.100 --> 00:21:11.400 This infant was tachycardic

NOTE Confidence: 0.9891913

00:21:11.700 --> 00:21:12.440 with tachypnea,

NOTE Confidence: 0.9780482

00:21:12.980 --> 00:21:13.460 and,

NOTE Confidence: 0.93326825

00:21:13.859 --> 00:21:15.220 the exam was notable for

NOTE Confidence: 0.93326825

00:21:15.220 --> 00:21:17.034 retractions and course breath sounds,

NOTE Confidence: 0.8812746

00:21:17.414 --> 00:21:18.934 but no audible EEGs were

NOTE Confidence: 0.8812746

00:21:18.934 --> 00:21:20.554 present. And the clinical team,

NOTE Confidence: 0.97554487

00:21:21.095 --> 00:21:21.895 not only did a lung

NOTE Confidence: 0.97554487

00:21:21.895 --> 00:21:23.414 ultrasound but performed a cardiac

NOTE Confidence: 0.97554487

00:21:23.414 --> 00:21:24.855 ultrasound as well to rule

NOTE Confidence: 0.97554487

00:21:24.855 --> 00:21:26.294 out any other potential causes

NOTE Confidence: 0.97554487

00:21:26.294 --> 00:21:27.674 of compensated shock.

NOTE Confidence: 0.9482331

00:21:31.200 --> 00:21:31.940 So interestingly,

NOTE Confidence: 0.99043787

00:21:32.720 --> 00:21:33.220 this,

NOTE Confidence: 0.9916681

00:21:33.919 --> 00:21:35.940 infant had one specific,

NOTE Confidence: 0.99074703

00:21:36.320 --> 00:21:37.859 lung area of abnormality,

NOTE Confidence: 0.99120754

00:21:38.880 --> 00:21:40.320 in the left posterior lung

NOTE Confidence: 0.99120754

00:21:40.320 --> 00:21:41.894 field. You can see here

NOTE Confidence: 0.99120754

00:21:41.894 --> 00:21:43.654 between those ribs, there is

NOTE Confidence: 0.99120754

00:21:43.654 --> 00:21:45.434 a absence of that

NOTE Confidence: 0.88493824

00:21:45.815 --> 00:21:46.875 pleural line,

NOTE Confidence: 0.9779088

00:21:48.054 --> 00:21:49.494 and a SHRED sign. So

NOTE Confidence: 0.9779088

00:21:49.494 --> 00:21:50.934 we have a lesion that

NOTE Confidence: 0.9779088

00:21:50.934 --> 00:21:52.934 is certainly abnormal and needs,

NOTE Confidence: 0.9779088

00:21:53.174 --> 00:21:54.394 more thorough evaluation.

NOTE Confidence: 0.97092336

00:21:56.820 --> 00:21:58.340 So a scan performed on

NOTE Confidence: 0.97092336

00:21:58.340 --> 00:21:59.619 the opposite side, the right

NOTE Confidence: 0.97092336

00:21:59.619 --> 00:22:01.480 posterior lung field is,

NOTE Confidence: 0.85208297

00:22:02.580 --> 00:22:03.559 here as,

NOTE Confidence: 0.97894204

00:22:04.980 --> 00:22:06.420 a comparison. And you can

NOTE Confidence: 0.97894204

00:22:06.420 --> 00:22:08.600 see the intact pleura throughout,

NOTE Confidence: 0.9261319

00:22:09.825 --> 00:22:11.044 you know, the rib spaces.

NOTE Confidence: 0.926035

00:22:11.664 --> 00:22:12.164 And,

NOTE Confidence: 0.9864091

00:22:13.265 --> 00:22:14.945 there are essentially normal a

NOTE Confidence: 0.9864091

00:22:14.945 --> 00:22:15.445 lines,

NOTE Confidence: 0.98635614

00:22:15.905 --> 00:22:18.225 in the different, lung zones

NOTE Confidence: 0.98635614

00:22:18.225 --> 00:22:19.825 as the probe slides from

NOTE Confidence: 0.98635614

00:22:19.825 --> 00:22:20.865 the top of the patient

NOTE Confidence: 0.98635614

00:22:20.865 --> 00:22:22.740 down towards the diaphragm in

NOTE Confidence: 0.98635614

00:22:22.740 --> 00:22:24.680 a sagittal plane.

NOTE Confidence: 0.9770726

00:22:26.980 --> 00:22:28.100 And so we go back

NOTE Confidence: 0.9770726

00:22:28.100 --> 00:22:30.280 to, the left side and,

NOTE Confidence: 0.9785224

00:22:31.540 --> 00:22:33.619 get another clear look here

NOTE Confidence: 0.9785224

00:22:33.619 --> 00:22:34.445 at this,

NOTE Confidence: 0.91637206

00:22:35.544 --> 00:22:36.044 subpleural,

NOTE Confidence: 0.9999753

00:22:37.065 --> 00:22:37.565 abnormality

NOTE Confidence: 0.937915

00:22:37.945 --> 00:22:39.304 where there's a break in

NOTE Confidence: 0.937915

00:22:39.304 --> 00:22:40.605 the pleural line,

NOTE Confidence: 0.9002937

00:22:41.065 --> 00:22:42.024 there's a shred sign, and

NOTE Confidence: 0.9002937

00:22:42.024 --> 00:22:43.225 there are start static air

NOTE Confidence: 0.9002937

00:22:43.225 --> 00:22:43.725 bronchograms

NOTE Confidence: 0.98326904

00:22:44.345 --> 00:22:46.744 in this, lesion, demarcated by

NOTE Confidence: 0.98326904

00:22:46.744 --> 00:22:48.264 the arrow. And so,

NOTE Confidence: 0.9877638

00:22:49.210 --> 00:22:50.250 what you do here is

NOTE Confidence: 0.9877638

00:22:50.250 --> 00:22:51.310 you turn the probe,

NOTE Confidence: 0.9762722

00:22:52.250 --> 00:22:54.030 ninety degrees to try and,

NOTE Confidence: 0.9317689

00:22:54.650 --> 00:22:55.150 assess,

NOTE Confidence: 0.9931272

00:22:56.250 --> 00:22:58.010 a complete picture of this,

NOTE Confidence: 0.9993443

00:22:58.490 --> 00:22:58.990 lesion.

NOTE Confidence: 0.9993605

00:22:59.450 --> 00:23:00.650 So when the probe is

NOTE Confidence: 0.9993605

00:23:00.650 --> 00:23:02.590 rotated in a transverse

NOTE Confidence: 0.9358275

00:23:03.184 --> 00:23:05.425 plane, you essentially see a

NOTE Confidence: 0.9358275

00:23:05.425 --> 00:23:07.045 confluence of b lines

NOTE Confidence: 0.99597454

00:23:07.665 --> 00:23:09.285 dropping down from the pleura

NOTE Confidence: 0.92229146

00:23:09.744 --> 00:23:10.804 as on the second

NOTE Confidence: 0.9968941

00:23:11.105 --> 00:23:12.565 ultrasound clip here.

NOTE Confidence: 0.98295474

00:23:12.865 --> 00:23:14.065 And again, if you were

NOTE Confidence: 0.98295474

00:23:14.065 --> 00:23:15.505 to rotate it ninety degrees

NOTE Confidence: 0.98295474

00:23:15.505 --> 00:23:16.865 with the indicator towards the

NOTE Confidence: 0.98295474

00:23:16.865 --> 00:23:18.869 patient's head in a sagittal

NOTE Confidence: 0.98295474

00:23:18.869 --> 00:23:20.390 plane, you would have made

NOTE Confidence: 0.98295474

00:23:20.390 --> 00:23:20.869 out,

NOTE Confidence: 0.78052485

00:23:21.750 --> 00:23:22.250 this,

NOTE Confidence: 0.843639

00:23:23.670 --> 00:23:24.170 abnormal,

NOTE Confidence: 0.96044254

00:23:24.790 --> 00:23:25.290 consolidation,

NOTE Confidence: 0.9986049

00:23:26.230 --> 00:23:27.830 which is highly suggestive of

NOTE Confidence: 0.9986049

00:23:27.830 --> 00:23:28.490 a pneumonia.

NOTE Confidence: 0.9537385

00:23:31.445 --> 00:23:32.725 So the clinical course was

NOTE Confidence: 0.9537385

00:23:32.725 --> 00:23:34.265 interesting for this infant,

NOTE Confidence: 0.9772326

00:23:35.125 --> 00:23:36.984 was admitted for respiratory monitoring

NOTE Confidence: 0.9772326

00:23:37.045 --> 00:23:38.825 after initiation of,

NOTE Confidence: 0.5261396

00:23:39.525 --> 00:23:40.185 a hydroxyamoxicillin

NOTE Confidence: 0.929739

00:23:40.885 --> 00:23:42.585 for this lung ultrasound finding,

NOTE Confidence: 0.929739

00:23:42.645 --> 00:23:44.085 and, an x-ray at the

NOTE Confidence: 0.929739

00:23:44.085 --> 00:23:44.820 time was not

NOTE Confidence: 0.9255879

00:23:45.299 --> 00:23:45.799 obtained.

NOTE Confidence: 0.9870653

00:23:46.259 --> 00:23:47.799 Had a pretty brief hospitalization,

NOTE Confidence: 0.929019

00:23:48.500 --> 00:23:49.480 had no fever,

NOTE Confidence: 0.9644038

00:23:50.100 --> 00:23:52.039 antibiotics ended up being discontinued,

NOTE Confidence: 0.9644038

00:23:52.179 --> 00:23:53.000 and was discharged

NOTE Confidence: 0.9706673

00:23:53.380 --> 00:23:55.000 home, after some

NOTE Confidence: 0.9961238

00:23:55.619 --> 00:23:57.059 period of monitoring, which he

NOTE Confidence: 0.9961238

00:23:57.059 --> 00:23:58.359 seemed to do quite well.

NOTE Confidence: 0.96481305

00:24:00.845 --> 00:24:01.965 Then three days later, he

NOTE Confidence: 0.96481305

00:24:01.965 --> 00:24:03.244 came back, this now being

NOTE Confidence: 0.96481305

00:24:03.244 --> 00:24:04.845 the fourth ER visit, with

NOTE Confidence: 0.96481305

00:24:04.845 --> 00:24:07.105 persistent fever and respiratory distress,

NOTE Confidence: 0.9623193

00:24:07.484 --> 00:24:08.605 at which point an X-ray

NOTE Confidence: 0.9623193

00:24:08.605 --> 00:24:11.184 was repeated showing, bilateral findings

NOTE Confidence: 0.9623193

00:24:11.244 --> 00:24:12.225 concerning for

NOTE Confidence: 0.9360316

00:24:12.619 --> 00:24:13.920 pneumonia, and amoxicillin

NOTE Confidence: 0.9410088

00:24:14.220 --> 00:24:14.540 was,

NOTE Confidence: 0.94316643

00:24:15.260 --> 00:24:15.760 represcribed

NOTE Confidence: 0.97817934

00:24:16.380 --> 00:24:17.820 and, able to be discharged

NOTE Confidence: 0.97817934

00:24:17.820 --> 00:24:20.220 home. And, he actually, did

NOTE Confidence: 0.97817934

00:24:20.220 --> 00:24:22.800 quite well without any, further,

NOTE Confidence: 0.99972755

00:24:23.580 --> 00:24:24.080 emergency

NOTE Confidence: 0.96932817

00:24:24.619 --> 00:24:26.480 visits for, labored breathing.

NOTE Confidence: 0.9482213

00:24:29.145 --> 00:24:31.225 Okay. So the, next possible

NOTE Confidence: 0.9482213

00:24:31.225 --> 00:24:33.145 outcome is that, lung focus

NOTE Confidence: 0.9482213

00:24:33.145 --> 00:24:34.605 has the potential to

NOTE Confidence: 0.96567

00:24:35.065 --> 00:24:37.385 lead to the prescription of

NOTE Confidence: 0.96567

00:24:37.385 --> 00:24:38.205 more antibiotics.

NOTE Confidence: 0.9775925

00:24:38.585 --> 00:24:39.945 And I say this only

NOTE Confidence: 0.9775925

00:24:39.945 --> 00:24:41.625 because it is, far more

NOTE Confidence: 0.9775925

00:24:41.625 --> 00:24:42.125 sensitive

NOTE Confidence: 0.9855208

00:24:42.450 --> 00:24:43.429 to pick up abnormalities,

NOTE Confidence: 0.9456444

00:24:44.450 --> 00:24:45.750 when compared to X-ray,

NOTE Confidence: 0.99767

00:24:46.210 --> 00:24:46.710 and

NOTE Confidence: 0.97719944

00:24:47.250 --> 00:24:49.490 viral pneumonia findings and bacterial

NOTE Confidence: 0.97719944

00:24:49.490 --> 00:24:51.269 pneumonia findings will have overlaps.

NOTE Confidence: 0.9910615

00:24:51.570 --> 00:24:52.929 And this has been, well

NOTE Confidence: 0.9910615

00:24:52.929 --> 00:24:54.210 documented to date with all

NOTE Confidence: 0.9910615

00:24:54.210 --> 00:24:54.869 the nonspecific

NOTE Confidence: 0.9678104

00:24:55.330 --> 00:24:55.830 findings,

NOTE Confidence: 0.99820644

00:24:56.210 --> 00:24:58.065 we see with COVID pneumonia.

NOTE Confidence: 0.95607007

00:24:58.685 --> 00:24:59.725 Here in this case, we

NOTE Confidence: 0.95607007

00:24:59.725 --> 00:25:01.005 present a twenty seven month

NOTE Confidence: 0.95607007

00:25:01.005 --> 00:25:03.244 old, with respiratory distress and

NOTE Confidence: 0.95607007

00:25:03.244 --> 00:25:03.744 fever.

NOTE Confidence: 0.9799257

00:25:04.285 --> 00:25:06.125 In January twenty twenty, when

NOTE Confidence: 0.9799257

00:25:06.125 --> 00:25:07.965 COVID pneumonia may have been

NOTE Confidence: 0.9799257

00:25:07.965 --> 00:25:09.325 circulating in the community, we

NOTE Confidence: 0.9799257

00:25:09.325 --> 00:25:10.285 don't know for a hundred

NOTE Confidence: 0.9799257

00:25:10.285 --> 00:25:10.680 percent.

NOTE Confidence: 0.9006059

00:25:11.720 --> 00:25:13.020 The, symptoms

NOTE Confidence: 0.70762086

00:25:13.320 --> 00:25:14.300 consisted of,

NOTE Confidence: 0.96332425

00:25:15.880 --> 00:25:16.840 two to three weeks of

NOTE Confidence: 0.96332425

00:25:16.840 --> 00:25:18.040 cough, worse at night, and

NOTE Confidence: 0.96332425

00:25:18.040 --> 00:25:19.100 one day of fever.

NOTE Confidence: 0.9865059

00:25:20.200 --> 00:25:21.720 Was ill appearing on exam

NOTE Confidence: 0.9865059

00:25:21.720 --> 00:25:24.060 with tachycardia, low oxygen saturation,

NOTE Confidence: 0.9865059

00:25:24.119 --> 00:25:25.020 and tachypnea.

NOTE Confidence: 0.94960994

00:25:25.534 --> 00:25:27.135 Also was listless with flaring

NOTE Confidence: 0.94960994

00:25:27.135 --> 00:25:28.734 and accessory muscle use and

NOTE Confidence: 0.94960994

00:25:28.734 --> 00:25:31.054 diminished breath sounds, throughout, but

NOTE Confidence: 0.94960994

00:25:31.054 --> 00:25:32.255 perhaps worsening in the right

NOTE Confidence: 0.94960994

00:25:32.255 --> 00:25:33.695 upper lung field. And an

NOTE Confidence: 0.94960994

00:25:33.695 --> 00:25:35.715 x-ray shown showed no focal

NOTE Confidence: 0.94960994

00:25:35.855 --> 00:25:36.355 infiltrate.

NOTE Confidence: 0.8966398

00:25:39.560 --> 00:25:40.859 Lung focus performed,

NOTE Confidence: 0.9916905

00:25:41.400 --> 00:25:42.920 in the right upper lobe

NOTE Confidence: 0.9916905

00:25:42.920 --> 00:25:44.540 showed the following abnormality,

NOTE Confidence: 0.94853

00:25:45.960 --> 00:25:47.720 disruption of the pleura, SHRED

NOTE Confidence: 0.94853

00:25:47.720 --> 00:25:50.119 sign, B lines, and, this

NOTE Confidence: 0.94853

00:25:50.119 --> 00:25:52.060 lesion was measured to be

NOTE Confidence: 0.94853

00:25:52.144 --> 00:25:53.125 one and a half centimeter

NOTE Confidence: 0.94853

00:25:53.184 --> 00:25:54.404 and concerning for,

NOTE Confidence: 0.9939252

00:25:55.024 --> 00:25:56.325 the start of a,

NOTE Confidence: 0.9992707

00:25:56.784 --> 00:25:57.284 pneumonia.

NOTE Confidence: 0.93546736

00:26:00.304 --> 00:26:01.345 So this child was admitted

NOTE Confidence: 0.93546736

00:26:01.345 --> 00:26:02.625 to the ICU, and IV

NOTE Confidence: 0.93546736

00:26:02.625 --> 00:26:03.924 ampicillin was initiated,

NOTE Confidence: 0.95349014

00:26:04.465 --> 00:26:05.904 was treated with BiPAP, and

NOTE Confidence: 0.95349014

00:26:05.904 --> 00:26:08.080 required continuous albuterol and steroids.

NOTE Confidence: 0.9938435

00:26:08.700 --> 00:26:09.840 Interestingly, a procalcitonin

NOTE Confidence: 0.99600536

00:26:10.220 --> 00:26:11.440 test came back normal.

NOTE Confidence: 0.97065645

00:26:11.820 --> 00:26:13.680 Chest x-ray done the subsequent

NOTE Confidence: 0.97065645

00:26:13.740 --> 00:26:15.420 date revealed and was read

NOTE Confidence: 0.97065645

00:26:15.420 --> 00:26:17.180 as a right upper lobe

NOTE Confidence: 0.97065645

00:26:17.180 --> 00:26:19.520 infiltrate consolidation versus atelectasis,

NOTE Confidence: 0.9959569

00:26:20.255 --> 00:26:22.175 and this correlated perfectly with

NOTE Confidence: 0.9959569

00:26:22.175 --> 00:26:23.855 the area of the lung

NOTE Confidence: 0.9959569

00:26:23.855 --> 00:26:25.375 that was imaged, the day

NOTE Confidence: 0.9959569

00:26:25.375 --> 00:26:26.495 before with that abnormal,

NOTE Confidence: 0.926674

00:26:27.615 --> 00:26:28.115 finding.

NOTE Confidence: 0.9702941

00:26:29.055 --> 00:26:30.915 Had a three day hospitalization,

NOTE Confidence: 0.9909376

00:26:32.779 --> 00:26:34.320 was managed as a bronchiolitis

NOTE Confidence: 0.74365604

00:26:36.139 --> 00:26:36.639 therapy,

NOTE Confidence: 0.94514257

00:26:37.419 --> 00:26:39.679 with, treatment of, reactive bronchospasm,

NOTE Confidence: 0.954538

00:26:40.299 --> 00:26:40.700 and,

NOTE Confidence: 0.99751264

00:26:41.179 --> 00:26:43.279 all viral tests were negative.

NOTE Confidence: 0.9986004

00:26:43.740 --> 00:26:45.659 So this child improved fully

NOTE Confidence: 0.9986004

00:26:45.659 --> 00:26:46.159 without

NOTE Confidence: 0.999422

00:26:46.525 --> 00:26:48.145 completing a full course of

NOTE Confidence: 0.999422

00:26:48.445 --> 00:26:48.945 antibiotics.

NOTE Confidence: 0.9631981

00:26:50.125 --> 00:26:51.725 And finally, lung ultrasound may

NOTE Confidence: 0.9631981

00:26:51.725 --> 00:26:53.085 have the potential to,

NOTE Confidence: 0.97978884

00:26:53.484 --> 00:26:54.465 decrease antibiotic,

NOTE Confidence: 0.9891216

00:26:55.165 --> 00:26:56.845 overuse. So here's a great

NOTE Confidence: 0.9891216

00:26:56.845 --> 00:26:57.345 example

NOTE Confidence: 0.97829795

00:26:57.725 --> 00:26:58.684 of a ten month old

NOTE Confidence: 0.97829795

00:26:58.684 --> 00:27:00.730 male with, a fever and

NOTE Confidence: 0.97829795

00:27:00.730 --> 00:27:01.869 suspected pneumonia

NOTE Confidence: 0.9438096

00:27:02.170 --> 00:27:03.770 as per, clinicians at a

NOTE Confidence: 0.9438096

00:27:03.770 --> 00:27:04.670 referring hospital,

NOTE Confidence: 0.998238

00:27:05.210 --> 00:27:06.750 who had initiated amoxicillin

NOTE Confidence: 0.8773438

00:27:07.770 --> 00:27:09.070 with an X-ray obtained

NOTE Confidence: 0.9584553

00:27:09.450 --> 00:27:10.890 was read as haziness in

NOTE Confidence: 0.9584553

00:27:10.890 --> 00:27:12.730 the left lung zone suspicious

NOTE Confidence: 0.9584553

00:27:12.730 --> 00:27:13.470 for pneumonia.

NOTE Confidence: 0.97901565

00:27:13.894 --> 00:27:15.014 However, there are definitely some

NOTE Confidence: 0.97901565

00:27:15.014 --> 00:27:16.794 other things going on, clinically

NOTE Confidence: 0.97901565

00:27:16.934 --> 00:27:18.875 to include a, prior,

NOTE Confidence: 0.9572409

00:27:19.815 --> 00:27:22.294 COVID positive PCR test ten

NOTE Confidence: 0.9572409

00:27:22.294 --> 00:27:22.695 days,

NOTE Confidence: 0.99924964

00:27:23.815 --> 00:27:24.875 before this presentation

NOTE Confidence: 0.68529403

00:27:25.654 --> 00:27:26.154 and,

NOTE Confidence: 0.9943433

00:27:26.695 --> 00:27:27.975 a daily fever for four

NOTE Confidence: 0.9943433

00:27:27.975 --> 00:27:28.475 days,

NOTE Confidence: 0.9441982

00:27:29.059 --> 00:27:30.179 a papular rash to the

NOTE Confidence: 0.9441982

00:27:30.179 --> 00:27:31.780 torso, some lesions to the

NOTE Confidence: 0.9441982

00:27:31.780 --> 00:27:32.980 lip gums, and some swelling

NOTE Confidence: 0.9441982

00:27:32.980 --> 00:27:34.020 to the hands and feet.

NOTE Confidence: 0.9441982

00:27:34.020 --> 00:27:35.720 So a multisystem picture.

NOTE Confidence: 0.94646007

00:27:36.340 --> 00:27:38.100 And this infant actually looked

NOTE Confidence: 0.94646007

00:27:38.100 --> 00:27:39.960 quite well appearing. No respiratory

NOTE Confidence: 0.94646007

00:27:40.020 --> 00:27:41.000 distress, playful,

NOTE Confidence: 0.9642607

00:27:41.465 --> 00:27:42.525 and, unremarkable

NOTE Confidence: 0.9724425

00:27:43.065 --> 00:27:44.045 physical examination.

NOTE Confidence: 0.98553365

00:27:44.825 --> 00:27:45.145 And,

NOTE Confidence: 0.9755177

00:27:45.865 --> 00:27:47.085 you can see the labs

NOTE Confidence: 0.9755177

00:27:47.145 --> 00:27:47.625 there,

NOTE Confidence: 0.99296135

00:27:48.025 --> 00:27:49.085 had a little thrombocytosis

NOTE Confidence: 0.977206

00:27:49.705 --> 00:27:51.405 and a slight elevation in

NOTE Confidence: 0.977206

00:27:51.705 --> 00:27:52.984 the ESR and and the

NOTE Confidence: 0.977206

00:27:52.984 --> 00:27:53.484 CRP.

NOTE Confidence: 0.8805319

00:27:55.540 --> 00:27:56.600 So in the ED,

NOTE Confidence: 0.82540035

00:27:57.780 --> 00:27:59.000 a complete six

NOTE Confidence: 0.926219

00:27:59.300 --> 00:28:01.540 zone lung ultrasound was performed

NOTE Confidence: 0.926219

00:28:01.540 --> 00:28:02.440 and well tolerated,

NOTE Confidence: 0.9674401

00:28:03.380 --> 00:28:04.360 and it revealed,

NOTE Confidence: 0.844204

00:28:05.780 --> 00:28:07.720 essentially the the following findings,

NOTE Confidence: 0.844204

00:28:07.780 --> 00:28:08.260 which,

NOTE Confidence: 0.94622827

00:28:09.285 --> 00:28:10.105 were unremarkable.

NOTE Confidence: 0.95676726

00:28:11.285 --> 00:28:12.825 You can see a lines,

NOTE Confidence: 0.95676726

00:28:13.125 --> 00:28:14.645 throughout all the lung zones

NOTE Confidence: 0.95676726

00:28:14.645 --> 00:28:15.385 being interrogated,

NOTE Confidence: 0.96511465

00:28:15.845 --> 00:28:17.685 and, occasionally, there's a little

NOTE Confidence: 0.96511465

00:28:17.685 --> 00:28:18.185 divot,

NOTE Confidence: 0.98456734

00:28:18.645 --> 00:28:19.525 at the level of the

NOTE Confidence: 0.98456734

00:28:19.525 --> 00:28:20.025 pleura,

NOTE Confidence: 0.9849922

00:28:20.405 --> 00:28:20.885 but,

NOTE Confidence: 0.9443823

00:28:21.365 --> 00:28:21.845 no,

NOTE Confidence: 0.99873906

00:28:22.244 --> 00:28:22.744 true

NOTE Confidence: 0.86044556

00:28:23.560 --> 00:28:24.619 b line with

NOTE Confidence: 0.976729

00:28:25.000 --> 00:28:26.859 stacked horizontal reverberation,

NOTE Confidence: 0.96856797

00:28:28.600 --> 00:28:29.960 dipping down, all the way

NOTE Confidence: 0.96856797

00:28:29.960 --> 00:28:30.840 down to the bottom of

NOTE Confidence: 0.96856797

00:28:30.840 --> 00:28:32.700 the screen. No shred sign,

NOTE Confidence: 0.96856797

00:28:32.920 --> 00:28:34.920 no static air bronchograms, and

NOTE Confidence: 0.96856797

00:28:34.920 --> 00:28:36.975 certainly no signs of hepatization.

NOTE Confidence: 0.99901175

00:28:37.515 --> 00:28:38.015 So

NOTE Confidence: 0.99302876

00:28:38.395 --> 00:28:39.595 based on these findings, we

NOTE Confidence: 0.99302876

00:28:39.595 --> 00:28:41.355 actually, made the recommendation to

NOTE Confidence: 0.99302876

00:28:41.355 --> 00:28:42.735 discontinue the amoxicillin.

NOTE Confidence: 0.9200604

00:28:45.515 --> 00:28:47.195 And this little infant was

NOTE Confidence: 0.9200604

00:28:47.195 --> 00:28:49.755 actually somewhat fascinating as it

NOTE Confidence: 0.9200604

00:28:49.755 --> 00:28:50.635 seemed to have,

NOTE Confidence: 0.9790963

00:28:52.000 --> 00:28:53.539 some sort of, mild

NOTE Confidence: 0.99849904

00:28:54.000 --> 00:28:55.220 inflammatory picture

NOTE Confidence: 0.93254817

00:28:55.600 --> 00:28:56.100 with,

NOTE Confidence: 0.89984757

00:28:57.360 --> 00:28:59.039 slightly elevated BNP and a

NOTE Confidence: 0.89984757

00:28:59.039 --> 00:29:00.580 slightly elevated D dimer.

NOTE Confidence: 0.9970269

00:29:01.200 --> 00:29:02.580 Was admitted for surveillance

NOTE Confidence: 0.98119843

00:29:04.105 --> 00:29:05.965 with concern for MIS C,

NOTE Confidence: 0.98119843

00:29:06.105 --> 00:29:07.005 normal echocardiogram

NOTE Confidence: 0.98297054

00:29:07.544 --> 00:29:08.825 during the admission, and there

NOTE Confidence: 0.98297054

00:29:08.825 --> 00:29:10.365 was no progression or decompensation.

NOTE Confidence: 0.8521704

00:29:11.225 --> 00:29:11.625 So,

NOTE Confidence: 0.9995831

00:29:12.745 --> 00:29:14.205 the team was able to

NOTE Confidence: 0.903265

00:29:14.745 --> 00:29:16.585 defer steroids and IVIG and

NOTE Confidence: 0.903265

00:29:16.585 --> 00:29:18.080 had a great follow-up visit,

NOTE Confidence: 0.9718448

00:29:18.460 --> 00:29:19.580 ten days later with,

NOTE Confidence: 0.99956965

00:29:20.220 --> 00:29:20.720 normalization

NOTE Confidence: 0.8694438

00:29:21.260 --> 00:29:21.760 of,

NOTE Confidence: 0.965949

00:29:22.700 --> 00:29:24.780 the inflammatory markers and was

NOTE Confidence: 0.965949

00:29:24.780 --> 00:29:26.460 clinically, well appearing and back

NOTE Confidence: 0.965949

00:29:26.460 --> 00:29:28.000 to herself at this point.

NOTE Confidence: 0.99557763

00:29:30.780 --> 00:29:32.445 So, there's lots

NOTE Confidence: 0.99096555

00:29:33.245 --> 00:29:33.904 of further

NOTE Confidence: 0.9824717

00:29:35.085 --> 00:29:35.585 inquiry,

NOTE Confidence: 0.97117054

00:29:36.205 --> 00:29:37.485 that is necessary so that

NOTE Confidence: 0.97117054

00:29:37.485 --> 00:29:38.524 we can fine tune how

NOTE Confidence: 0.97117054

00:29:38.524 --> 00:29:40.524 to integrate lung pocus, as

NOTE Confidence: 0.97117054

00:29:40.524 --> 00:29:41.404 part of our,

NOTE Confidence: 0.97407603

00:29:41.965 --> 00:29:43.664 workups for pediatric pneumonia.

NOTE Confidence: 0.991153

00:29:44.044 --> 00:29:45.485 It's possible that we will

NOTE Confidence: 0.991153

00:29:45.485 --> 00:29:47.670 have to incorporate lung ultrasound

NOTE Confidence: 0.991153

00:29:47.670 --> 00:29:49.990 findings with not only physical

NOTE Confidence: 0.991153

00:29:49.990 --> 00:29:51.690 exam, but also some laboratory

NOTE Confidence: 0.991153

00:29:51.750 --> 00:29:53.750 values to make, good decisions

NOTE Confidence: 0.991153

00:29:53.750 --> 00:29:54.250 about

NOTE Confidence: 0.97032565

00:29:54.630 --> 00:29:55.770 antibiotic stewardship.

NOTE Confidence: 0.96927786

00:29:56.310 --> 00:29:57.770 And there's also some instances

NOTE Confidence: 0.96927786

00:29:57.910 --> 00:29:59.990 where, lung ultrasound will have

NOTE Confidence: 0.96927786

00:29:59.990 --> 00:30:01.510 to be incorporated in parallel

NOTE Confidence: 0.96927786

00:30:01.510 --> 00:30:02.865 with with chest radiography

NOTE Confidence: 0.98289925

00:30:03.325 --> 00:30:04.385 in certain instances

NOTE Confidence: 0.8889462

00:30:04.765 --> 00:30:06.625 to minimize our risk for,

NOTE Confidence: 0.99876344

00:30:07.164 --> 00:30:07.664 misdiagnosis.

NOTE Confidence: 0.9808317

00:30:11.325 --> 00:30:12.285 And so here in this

NOTE Confidence: 0.9808317

00:30:12.285 --> 00:30:13.405 final case, you can see

NOTE Confidence: 0.9808317

00:30:13.405 --> 00:30:14.205 we have a twenty one

NOTE Confidence: 0.9808317

00:30:14.205 --> 00:30:15.405 year old with fever, wheezing,

NOTE Confidence: 0.9808317

00:30:15.405 --> 00:30:16.924 and decreased breath sounds on

NOTE Confidence: 0.9808317

00:30:16.924 --> 00:30:18.539 the right. On this frontal

NOTE Confidence: 0.9808317

00:30:18.539 --> 00:30:19.919 projection of the X-ray,

NOTE Confidence: 0.9810171

00:30:20.460 --> 00:30:21.419 you can see that there

NOTE Confidence: 0.9810171

00:30:21.419 --> 00:30:21.919 is,

NOTE Confidence: 0.9982856

00:30:22.620 --> 00:30:24.380 an obvious abnormality that could

NOTE Confidence: 0.9982856

00:30:24.380 --> 00:30:26.140 be interpreted as pneumonia. If

NOTE Confidence: 0.9982856

00:30:26.140 --> 00:30:27.200 you put the lung

NOTE Confidence: 0.9438999

00:30:27.740 --> 00:30:28.700 probe as was done in

NOTE Confidence: 0.9438999

00:30:28.700 --> 00:30:30.539 this case right over this

NOTE Confidence: 0.9438999

00:30:30.539 --> 00:30:31.039 lesion,

NOTE Confidence: 0.9996583

00:30:31.340 --> 00:30:32.240 you can see

NOTE Confidence: 0.90660447

00:30:32.940 --> 00:30:34.284 a a mass

NOTE Confidence: 0.9248212

00:30:35.304 --> 00:30:36.825 like finding, which could be

NOTE Confidence: 0.9248212

00:30:36.825 --> 00:30:37.325 misconstrued

NOTE Confidence: 0.927599

00:30:38.105 --> 00:30:38.765 as hepatization.

NOTE Confidence: 0.9973265

00:30:39.544 --> 00:30:40.284 There is

NOTE Confidence: 0.89654005

00:30:40.825 --> 00:30:42.445 no a lines. There

NOTE Confidence: 0.9345155

00:30:42.985 --> 00:30:44.265 are no b lines. There

NOTE Confidence: 0.9345155

00:30:44.265 --> 00:30:45.705 is no shred sign. There

NOTE Confidence: 0.9345155

00:30:45.705 --> 00:30:46.445 is no

NOTE Confidence: 0.9618597

00:30:46.800 --> 00:30:47.940 static air bronchograms,

NOTE Confidence: 0.94916314

00:30:48.400 --> 00:30:49.760 and this tissue doesn't quite

NOTE Confidence: 0.94916314

00:30:49.760 --> 00:30:50.580 look hepatized

NOTE Confidence: 0.9785983

00:30:51.200 --> 00:30:53.300 like, in the prior example.

NOTE Confidence: 0.9785983

00:30:53.440 --> 00:30:53.940 So,

NOTE Confidence: 0.9094256

00:30:55.200 --> 00:30:56.240 if you're able to obtain

NOTE Confidence: 0.9094256

00:30:56.240 --> 00:30:57.940 a lateral chest X-ray,

NOTE Confidence: 0.92132866

00:30:58.640 --> 00:31:00.640 this diagnosis is more consistent

NOTE Confidence: 0.92132866

00:31:00.640 --> 00:31:02.185 with the anterior mediastinal

NOTE Confidence: 0.97758824

00:31:02.645 --> 00:31:04.165 mass, and this young man

NOTE Confidence: 0.97758824

00:31:04.165 --> 00:31:04.905 was subsequently

NOTE Confidence: 0.88383055

00:31:05.365 --> 00:31:05.865 diagnosed,

NOTE Confidence: 0.9956974

00:31:06.325 --> 00:31:07.925 with a lymphoma. So the

NOTE Confidence: 0.9956974

00:31:07.925 --> 00:31:09.925 important point here is that,

NOTE Confidence: 0.9053688

00:31:10.565 --> 00:31:12.025 a chest wall mass,

NOTE Confidence: 0.94707024

00:31:12.485 --> 00:31:13.140 can mimic,

NOTE Confidence: 0.99980897

00:31:13.780 --> 00:31:14.280 potentially

NOTE Confidence: 0.90405566

00:31:14.660 --> 00:31:15.960 the appearance of hepatisized

NOTE Confidence: 0.99284935

00:31:16.340 --> 00:31:17.780 lung tissue, and this needs

NOTE Confidence: 0.99284935

00:31:17.780 --> 00:31:20.020 to be carefully accounted for

NOTE Confidence: 0.99284935

00:31:20.020 --> 00:31:21.700 during the clinical assessment of

NOTE Confidence: 0.99284935

00:31:21.700 --> 00:31:22.360 our patients.

NOTE Confidence: 0.925805

00:31:24.820 --> 00:31:26.684 A couple of other pitfalls

NOTE Confidence: 0.925805

00:31:26.684 --> 00:31:28.304 and potential false positives,

NOTE Confidence: 0.9716627

00:31:28.605 --> 00:31:30.225 in the right clinical

NOTE Confidence: 0.7497484

00:31:30.684 --> 00:31:31.184 scenario,

NOTE Confidence: 0.9836097

00:31:31.485 --> 00:31:32.945 thymus can appear

NOTE Confidence: 0.6529393

00:31:34.284 --> 00:31:34.784 as

NOTE Confidence: 0.98458695

00:31:35.404 --> 00:31:36.145 a homogeneous,

NOTE Confidence: 0.9682007

00:31:37.245 --> 00:31:38.385 you know, appearing

NOTE Confidence: 0.72197294

00:31:38.845 --> 00:31:40.065 mass. Typically,

NOTE Confidence: 0.91025054

00:31:40.845 --> 00:31:42.519 this is found anteriorly,

NOTE Confidence: 0.9994944

00:31:43.779 --> 00:31:44.919 in front of the heart

NOTE Confidence: 0.8480489

00:31:45.299 --> 00:31:46.659 and can be seen in

NOTE Confidence: 0.8480489

00:31:46.659 --> 00:31:47.860 my experience both,

NOTE Confidence: 0.9774349

00:31:48.740 --> 00:31:50.100 on the right side and

NOTE Confidence: 0.9774349

00:31:50.100 --> 00:31:51.139 in the left side of

NOTE Confidence: 0.9774349

00:31:51.139 --> 00:31:51.799 the chest,

NOTE Confidence: 0.9870504

00:31:52.259 --> 00:31:53.960 with integration of the anterior

NOTE Confidence: 0.9870504

00:31:54.019 --> 00:31:55.705 lung fields. So we must

NOTE Confidence: 0.9870504

00:31:55.705 --> 00:31:56.765 be able to recognize,

NOTE Confidence: 0.9839167

00:31:57.065 --> 00:31:59.065 thymus tissue as normal. And

NOTE Confidence: 0.9839167

00:31:59.065 --> 00:32:00.025 actually, one of the keys

NOTE Confidence: 0.9839167

00:32:00.025 --> 00:32:01.145 for me is the pleura.

NOTE Confidence: 0.9839167

00:32:01.145 --> 00:32:02.265 So in this image of

NOTE Confidence: 0.9839167

00:32:02.265 --> 00:32:02.765 thymus,

NOTE Confidence: 0.97579473

00:32:03.065 --> 00:32:04.985 you can still, make out

NOTE Confidence: 0.97579473

00:32:04.985 --> 00:32:05.805 the echogenic,

NOTE Confidence: 0.974753

00:32:06.825 --> 00:32:07.645 bright pleura,

NOTE Confidence: 0.9219892

00:32:08.425 --> 00:32:09.750 in between the rib spaces.

NOTE Confidence: 0.9219892

00:32:09.990 --> 00:32:10.490 And

NOTE Confidence: 0.99156123

00:32:11.030 --> 00:32:12.550 so, that to me is

NOTE Confidence: 0.99156123

00:32:12.550 --> 00:32:13.990 a clear indicator that,

NOTE Confidence: 0.9634592

00:32:14.550 --> 00:32:16.230 this is not consistent with

NOTE Confidence: 0.9634592

00:32:16.230 --> 00:32:17.050 lung hepatization

NOTE Confidence: 0.9991344

00:32:17.670 --> 00:32:18.650 or pneumonia.

NOTE Confidence: 0.992769

00:32:20.550 --> 00:32:21.050 Finally,

NOTE Confidence: 0.9402757

00:32:22.085 --> 00:32:23.445 in the left upper quadrant,

NOTE Confidence: 0.9402757

00:32:23.445 --> 00:32:24.505 especially when,

NOTE Confidence: 0.99616086

00:32:25.285 --> 00:32:25.785 assessing

NOTE Confidence: 0.9995245

00:32:26.165 --> 00:32:26.665 for

NOTE Confidence: 0.9663306

00:32:27.685 --> 00:32:29.545 a fusion with the curvilinear

NOTE Confidence: 0.9663306

00:32:29.765 --> 00:32:30.265 probe,

NOTE Confidence: 0.96647704

00:32:31.205 --> 00:32:32.325 the stomach when it is

NOTE Confidence: 0.96647704

00:32:32.325 --> 00:32:34.210 filled with mixed contents to

NOTE Confidence: 0.96647704

00:32:34.210 --> 00:32:35.970 include air, can give off

NOTE Confidence: 0.96647704

00:32:35.970 --> 00:32:38.050 a bright echogenic appearance. So

NOTE Confidence: 0.96647704

00:32:38.050 --> 00:32:39.730 you really wanna be very

NOTE Confidence: 0.96647704

00:32:39.730 --> 00:32:41.350 clear as to whether,

NOTE Confidence: 0.99958795

00:32:41.890 --> 00:32:43.570 these findings are above or

NOTE Confidence: 0.99958795

00:32:43.570 --> 00:32:44.790 below the diaphragm.

NOTE Confidence: 0.99736464

00:32:45.090 --> 00:32:46.450 So in this particular image,

NOTE Confidence: 0.99736464

00:32:46.450 --> 00:32:47.830 you're not seeing the diaphragm

NOTE Confidence: 0.99736464

00:32:47.890 --> 00:32:49.350 clearly, but you're seeing

NOTE Confidence: 0.9602914

00:32:50.225 --> 00:32:51.105 pleura at the top of

NOTE Confidence: 0.9602914

00:32:51.105 --> 00:32:52.385 the screen next to the

NOTE Confidence: 0.9602914

00:32:52.385 --> 00:32:53.185 p with,

NOTE Confidence: 0.97588

00:32:53.985 --> 00:32:54.725 lung sliding.

NOTE Confidence: 0.991983

00:32:55.105 --> 00:32:56.405 And so you see pleura,

NOTE Confidence: 0.991983

00:32:56.625 --> 00:32:57.765 rib, pleura,

NOTE Confidence: 0.9884848

00:32:58.065 --> 00:32:59.745 rib. You don't quite see

NOTE Confidence: 0.9884848

00:32:59.745 --> 00:33:01.445 the diaphragm, but the spleen

NOTE Confidence: 0.9884848

00:33:01.665 --> 00:33:02.405 is there,

NOTE Confidence: 0.94773847

00:33:03.460 --> 00:33:04.900 right adjacent to the rib

NOTE Confidence: 0.94773847

00:33:04.900 --> 00:33:05.860 shadow that is in the

NOTE Confidence: 0.94773847

00:33:05.860 --> 00:33:07.460 center of the screen, and

NOTE Confidence: 0.94773847

00:33:07.460 --> 00:33:09.300 the stomach, with air filled

NOTE Confidence: 0.94773847

00:33:09.300 --> 00:33:10.740 and mixed contents is giving

NOTE Confidence: 0.94773847

00:33:10.740 --> 00:33:11.800 off a bright appearance,

NOTE Confidence: 0.9850786

00:33:12.100 --> 00:33:13.480 behind the spleen. So,

NOTE Confidence: 0.9694722

00:33:13.860 --> 00:33:16.180 location, location, location, and pattern

NOTE Confidence: 0.9694722

00:33:16.180 --> 00:33:16.680 recognition

NOTE Confidence: 0.70852864

00:33:17.220 --> 00:33:18.485 and, knowing,

NOTE Confidence: 0.9866636

00:33:18.945 --> 00:33:20.145 your landmarks and what you're

NOTE Confidence: 0.9866636

00:33:20.145 --> 00:33:21.425 looking for are going to

NOTE Confidence: 0.9866636

00:33:21.425 --> 00:33:21.905 be,

NOTE Confidence: 0.9900658

00:33:22.545 --> 00:33:24.625 very important to minimize your,

NOTE Confidence: 0.9900658

00:33:24.945 --> 00:33:26.325 false positive interpretations.

NOTE Confidence: 0.9625253

00:33:29.425 --> 00:33:30.385 So this is such an

NOTE Confidence: 0.9625253

00:33:30.385 --> 00:33:32.225 exciting modality, but we're clearly

NOTE Confidence: 0.9625253

00:33:32.225 --> 00:33:34.230 not doing this. Protocolized on

NOTE Confidence: 0.9625253

00:33:34.230 --> 00:33:36.250 every patient. And, there

NOTE Confidence: 0.99100953

00:33:36.710 --> 00:33:37.750 are lots of reasons why

NOTE Confidence: 0.99100953

00:33:37.750 --> 00:33:38.570 this is so.

NOTE Confidence: 0.95292664

00:33:39.350 --> 00:33:40.730 Number one, from a practical

NOTE Confidence: 0.95292664

00:33:40.790 --> 00:33:42.730 standpoint, it it takes time,

NOTE Confidence: 0.95292664

00:33:42.790 --> 00:33:44.070 much it takes a longer

NOTE Confidence: 0.95292664

00:33:44.070 --> 00:33:46.205 time for the setup and,

NOTE Confidence: 0.97296304

00:33:47.225 --> 00:33:49.164 the, process of

NOTE Confidence: 0.9554516

00:33:49.625 --> 00:33:50.985 completing a a a high

NOTE Confidence: 0.9554516

00:33:50.985 --> 00:33:53.065 quality lung ultrasound in a

NOTE Confidence: 0.9554516

00:33:53.065 --> 00:33:54.184 infant and a toddler as

NOTE Confidence: 0.9554516

00:33:54.184 --> 00:33:55.385 opposed to an X-ray is

NOTE Confidence: 0.9554516

00:33:55.385 --> 00:33:56.365 just a quick

NOTE Confidence: 0.9540407

00:33:57.385 --> 00:33:58.424 picture with a plate on

NOTE Confidence: 0.9540407

00:33:58.424 --> 00:33:59.304 the back or on the

NOTE Confidence: 0.9540407

00:33:59.304 --> 00:33:59.804 side.

NOTE Confidence: 0.96929127

00:34:00.300 --> 00:34:02.140 You know, patient cooperation does

NOTE Confidence: 0.96929127

00:34:02.140 --> 00:34:03.500 come into play here, so

NOTE Confidence: 0.96929127

00:34:03.500 --> 00:34:05.280 you really have to

NOTE Confidence: 0.8761776

00:34:06.460 --> 00:34:06.960 engage,

NOTE Confidence: 0.95330364

00:34:07.900 --> 00:34:09.260 you know, the caregiver to

NOTE Confidence: 0.95330364

00:34:09.260 --> 00:34:10.540 be a partner. And,

NOTE Confidence: 0.72254324

00:34:12.060 --> 00:34:13.360 you you know,

NOTE Confidence: 0.87663436

00:34:13.739 --> 00:34:14.239 sometimes,

NOTE Confidence: 0.9558003

00:34:14.625 --> 00:34:16.145 you know, patients just are

NOTE Confidence: 0.9558003

00:34:16.145 --> 00:34:16.965 not gonna tolerate

NOTE Confidence: 0.97529596

00:34:17.825 --> 00:34:19.105 either the gel or the

NOTE Confidence: 0.97529596

00:34:19.105 --> 00:34:20.545 probe or just the whole

NOTE Confidence: 0.97529596

00:34:20.545 --> 00:34:21.844 process in general.

NOTE Confidence: 0.9135332

00:34:22.465 --> 00:34:22.945 And,

NOTE Confidence: 0.96303856

00:34:23.825 --> 00:34:25.985 we need adequate training, and

NOTE Confidence: 0.96303856

00:34:25.985 --> 00:34:27.344 and we need to reach

NOTE Confidence: 0.96303856

00:34:27.344 --> 00:34:29.025 a level of competency across

NOTE Confidence: 0.96303856

00:34:29.025 --> 00:34:30.660 the board that is not

NOTE Confidence: 0.96303856

00:34:30.660 --> 00:34:31.060 yet,

NOTE Confidence: 0.9967559

00:34:32.020 --> 00:34:33.079 been well established.

NOTE Confidence: 0.9843941

00:34:34.020 --> 00:34:35.700 And, unfortunately, when doing research

NOTE Confidence: 0.9843941

00:34:35.700 --> 00:34:37.619 around, this topic, there are

NOTE Confidence: 0.9843941

00:34:37.619 --> 00:34:40.280 serious challenges related to assigning

NOTE Confidence: 0.9843941

00:34:40.339 --> 00:34:41.319 an incontrovertible

NOTE Confidence: 0.9605579

00:34:42.020 --> 00:34:43.319 reference or criterion

NOTE Confidence: 0.9262531

00:34:43.859 --> 00:34:44.359 standard.

NOTE Confidence: 0.9922381

00:34:44.835 --> 00:34:46.855 But for resource limited settings

NOTE Confidence: 0.9922381

00:34:46.915 --> 00:34:47.655 and for

NOTE Confidence: 0.99964416

00:34:47.955 --> 00:34:49.815 individuals who are comfortable

NOTE Confidence: 0.99867654

00:34:50.114 --> 00:34:51.875 at performing lung ultrasound and

NOTE Confidence: 0.99867654

00:34:51.875 --> 00:34:53.015 are able to interpret

NOTE Confidence: 0.98075837

00:34:53.715 --> 00:34:55.474 findings in the clinical context,

NOTE Confidence: 0.98075837

00:34:55.474 --> 00:34:56.535 this is an invaluable,

NOTE Confidence: 0.9998654

00:34:57.640 --> 00:34:58.140 tool

NOTE Confidence: 0.9958121

00:34:58.520 --> 00:35:00.360 with tremendous promise for the

NOTE Confidence: 0.9958121

00:35:00.360 --> 00:35:02.300 future care of our pediatric

NOTE Confidence: 0.9958121

00:35:02.360 --> 00:35:04.700 patients with respiratory distress

NOTE Confidence: 0.9956641

00:35:05.000 --> 00:35:05.739 or unexplained

NOTE Confidence: 0.9906473

00:35:06.040 --> 00:35:07.560 chest pain. And there is

NOTE Confidence: 0.9906473

00:35:07.560 --> 00:35:09.260 certainly a lot of enthusiasm

NOTE Confidence: 0.9998302

00:35:09.640 --> 00:35:11.020 and momentum behind

NOTE Confidence: 0.8784119

00:35:11.640 --> 00:35:13.594 for lung pocus to increase

NOTE Confidence: 0.8784119

00:35:13.815 --> 00:35:14.795 our position

NOTE Confidence: 0.995048

00:35:15.335 --> 00:35:17.335 in emergency medicine when we

NOTE Confidence: 0.995048

00:35:17.335 --> 00:35:19.435 are challenged to make clinical

NOTE Confidence: 0.995048

00:35:19.575 --> 00:35:20.075 decisions

NOTE Confidence: 0.9477707

00:35:20.375 --> 00:35:21.594 with oftentimes

NOTE Confidence: 0.9910908

00:35:22.215 --> 00:35:22.715 imperfect

NOTE Confidence: 0.997859

00:35:23.094 --> 00:35:23.835 and limited

NOTE Confidence: 0.99765766

00:35:24.135 --> 00:35:24.635 information.

NOTE Confidence: 0.99520075

00:35:27.650 --> 00:35:29.109 This concludes our introduction

NOTE Confidence: 0.9940342

00:35:29.410 --> 00:35:31.349 to lung ultrasound part two.

NOTE Confidence: 0.9940342

00:35:31.489 --> 00:35:32.770 We hope you find this,

NOTE Confidence: 0.86619854

00:35:33.170 --> 00:35:34.789 information useful, and,

NOTE Confidence: 0.9926027

00:35:36.210 --> 00:35:37.329 if there are any questions,

NOTE Confidence: 0.9926027

00:35:37.329 --> 00:35:38.609 please don't hesitate to reach

NOTE Confidence: 0.9926027

00:35:38.609 --> 00:35:40.309 out. Otherwise, we'll see you

NOTE Confidence: 0.9926027

00:35:40.445 --> 00:35:42.205 soon, and this content will

NOTE Confidence: 0.9926027

00:35:42.205 --> 00:35:42.864 be updated

NOTE Confidence: 0.99618167

00:35:43.165 --> 00:35:44.785 as, deemed necessary.