SUPERIOR COURT OF THE STATE OF CALIFORNIA

COUNTY OF SAN FRANCISCO

DEWAYNE JOHNSON,

Plaintiff,

vs. Case No. CGC-16-550128

MONSANTO COMPANY, et al.,

Defendants.

_____/

Proceedings held on Friday, July 20, 2018, Volume 13, Morning Session, before the Honorable Suzanne R. Bolanos, at 9:17 a.m.

REPORTED BY:

LESLIE ROCKWOOD ROSAS, RPR, CSR 3462

Job No. 2965317A

Pages 2755 - 2877

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EXHIBITS ADMITTED

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Morning Session

San Francisco, California

Department 504

Judge Suzanne Ramos Bolanos

PROCEEDINGS

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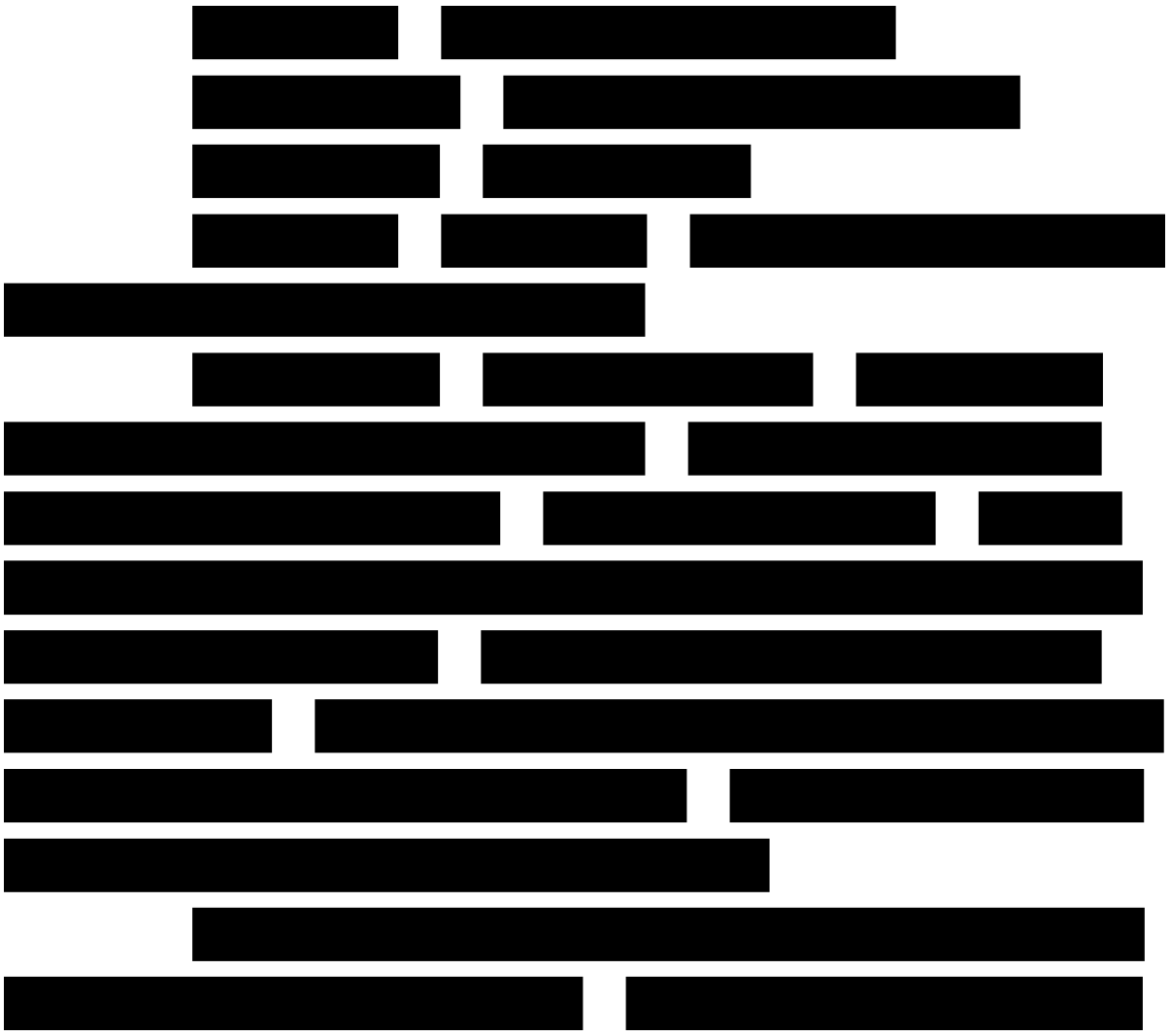

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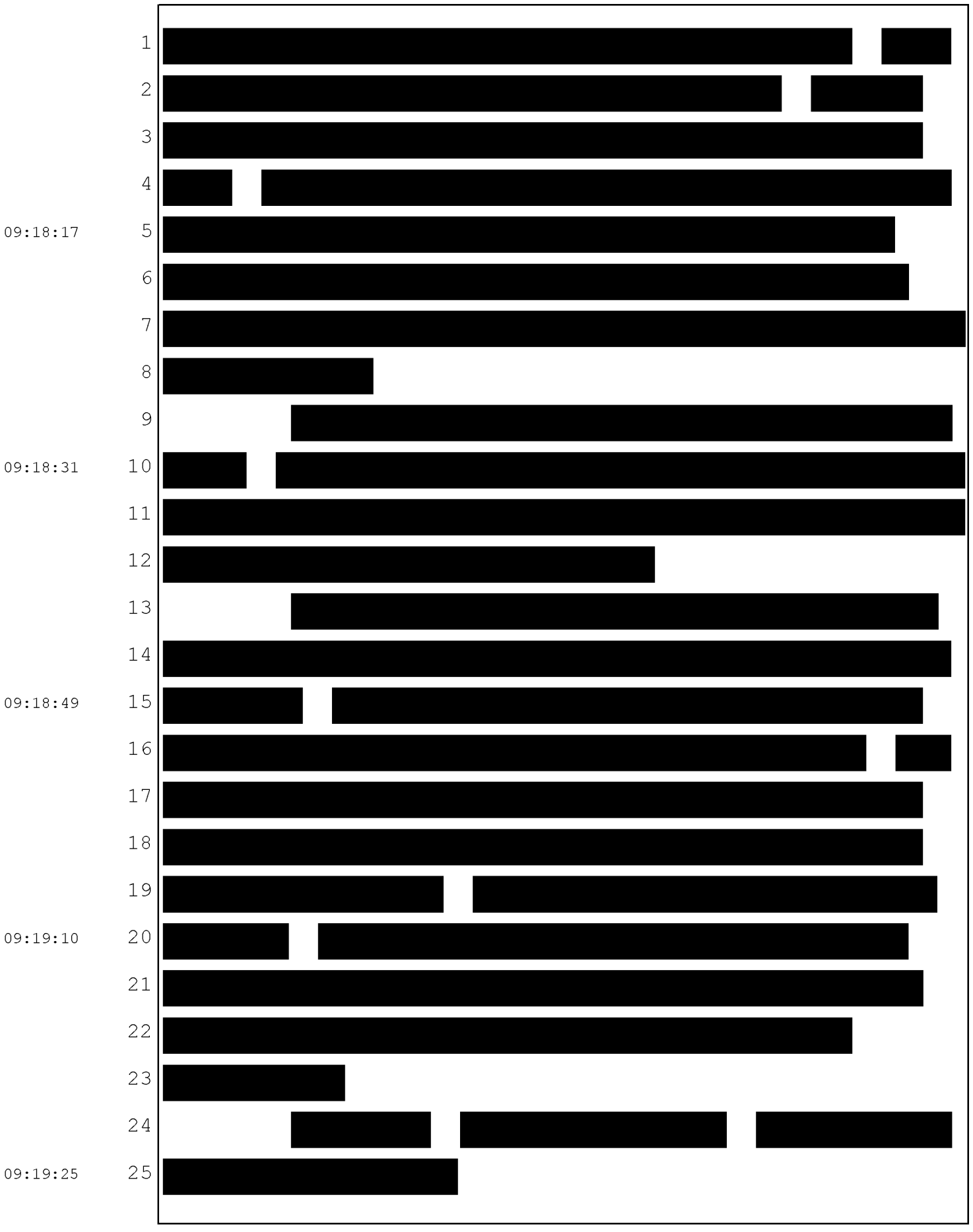
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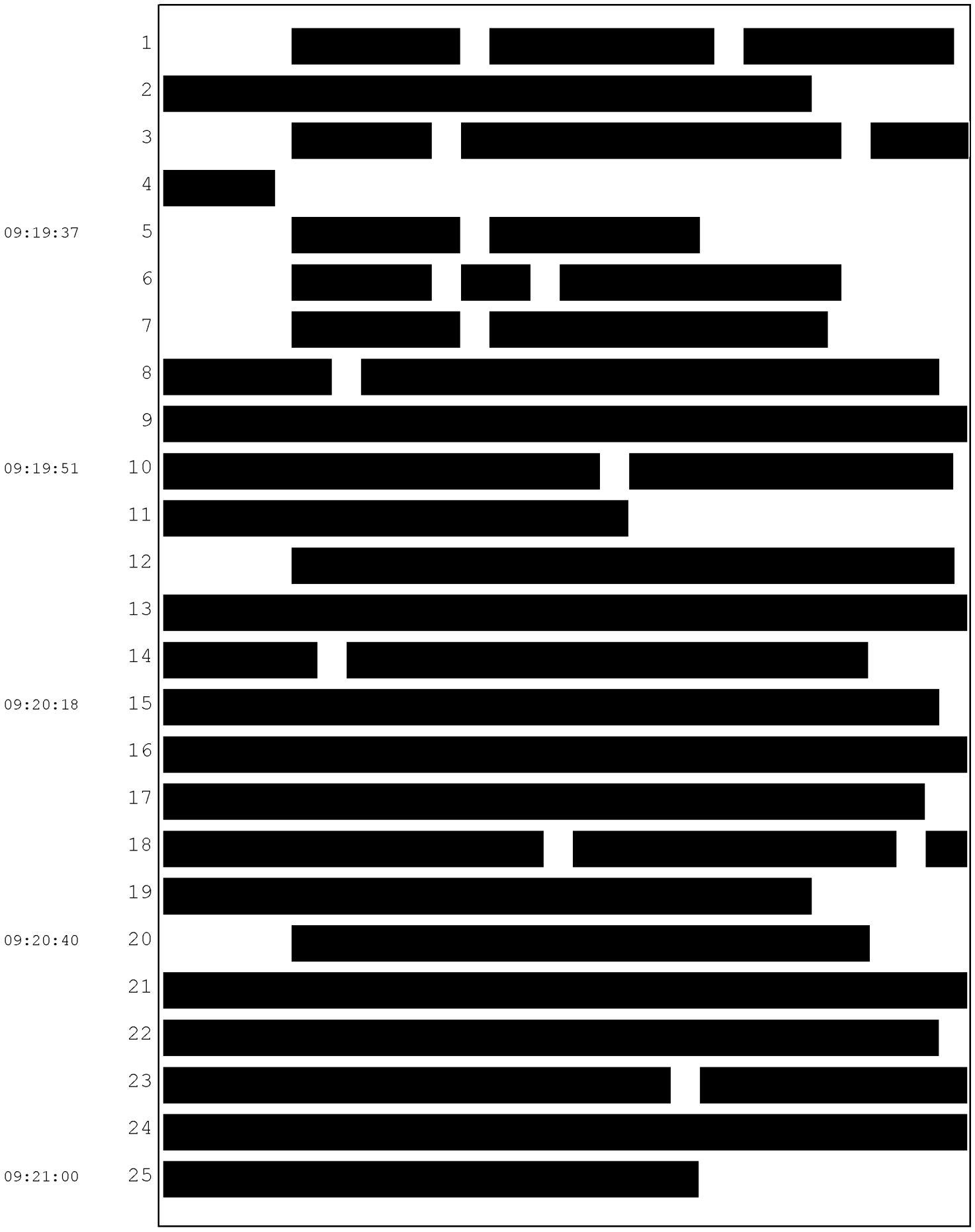
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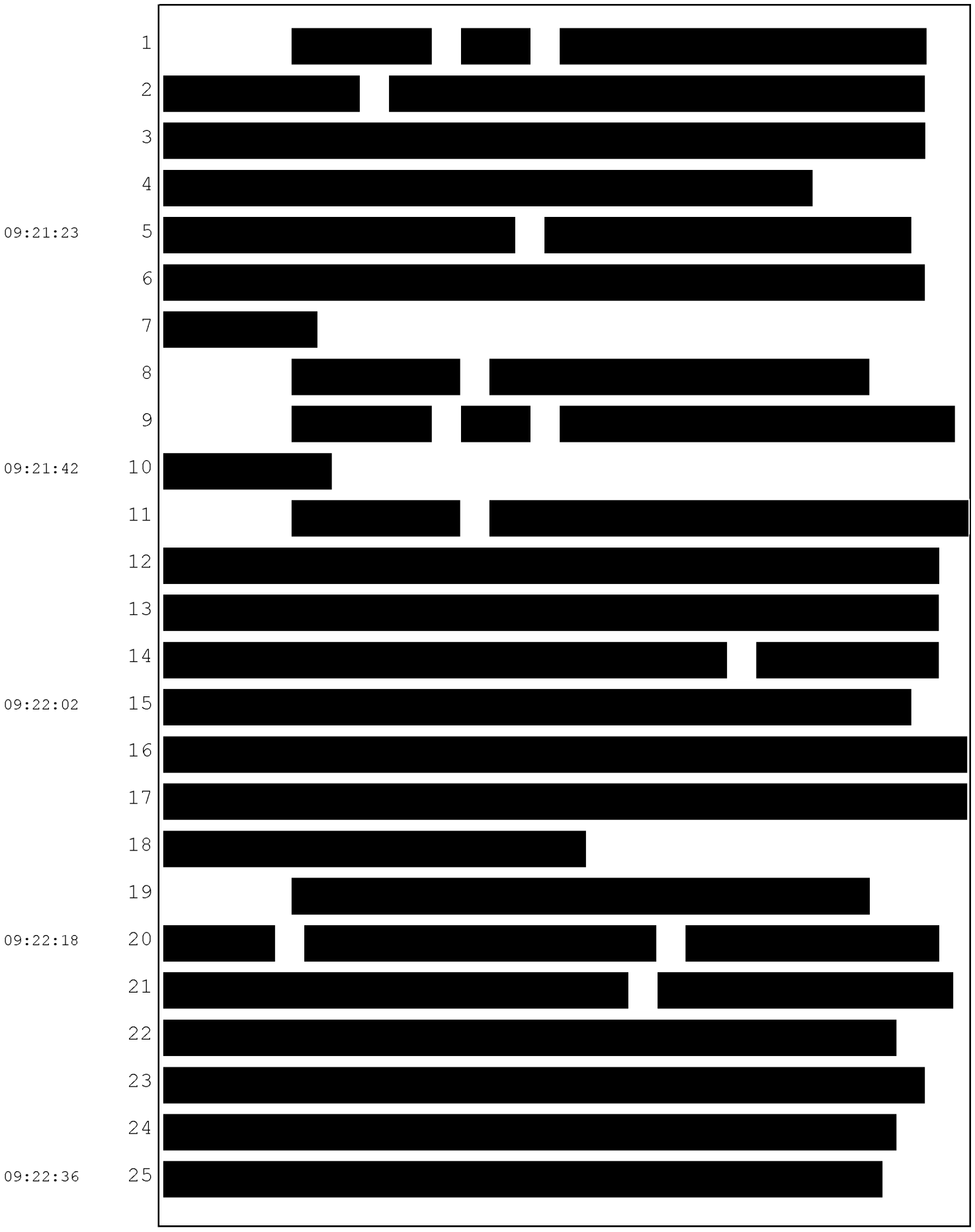
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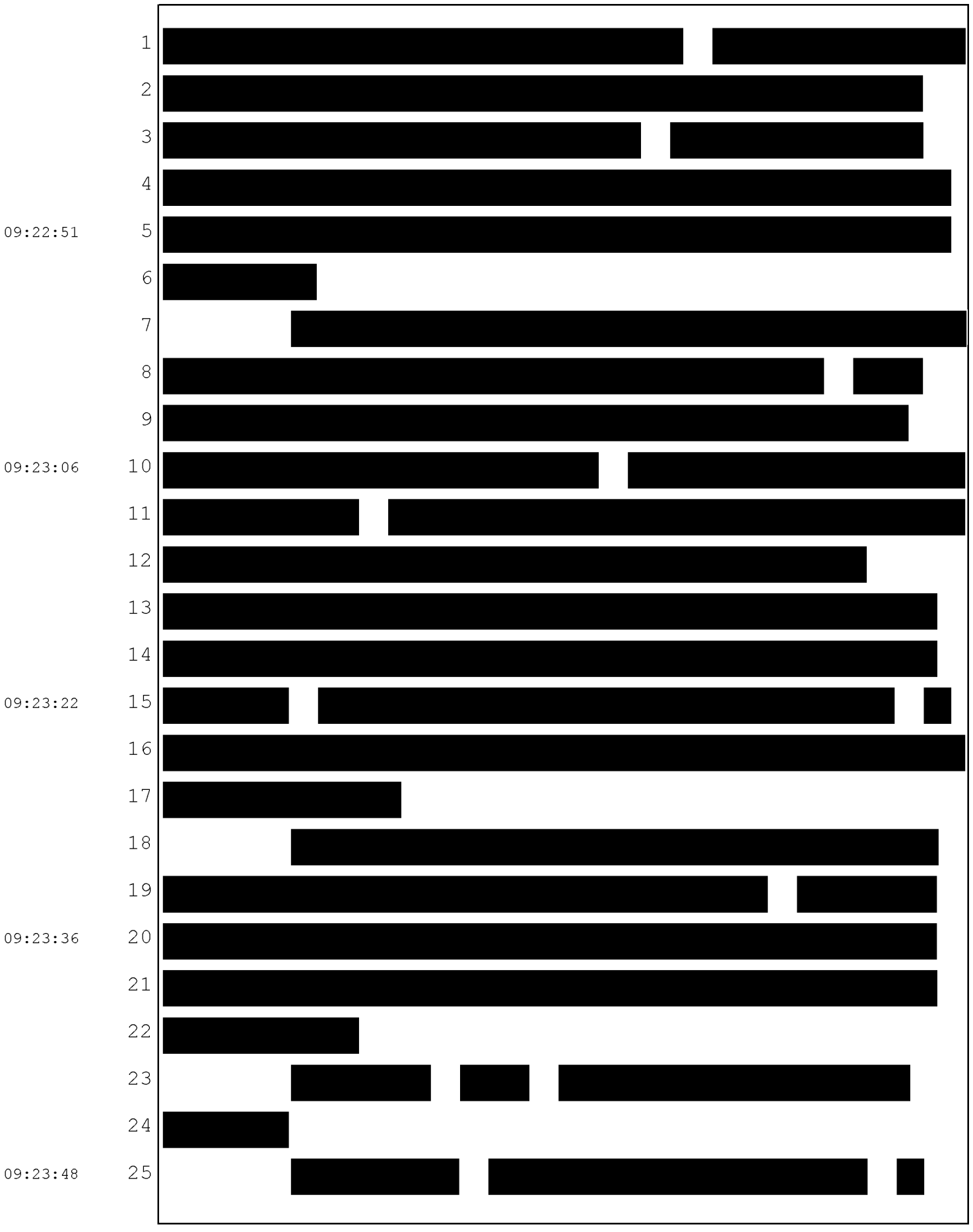
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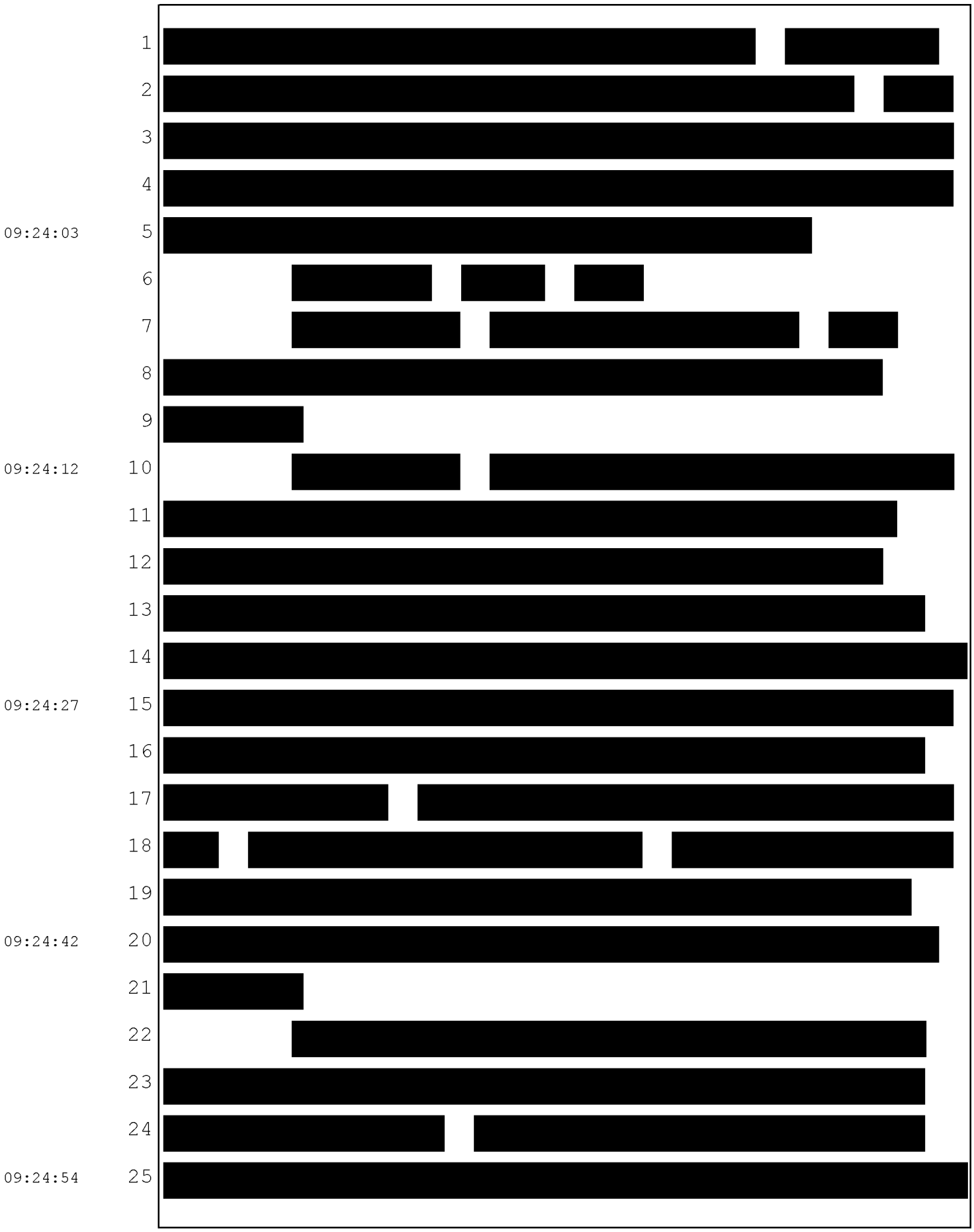
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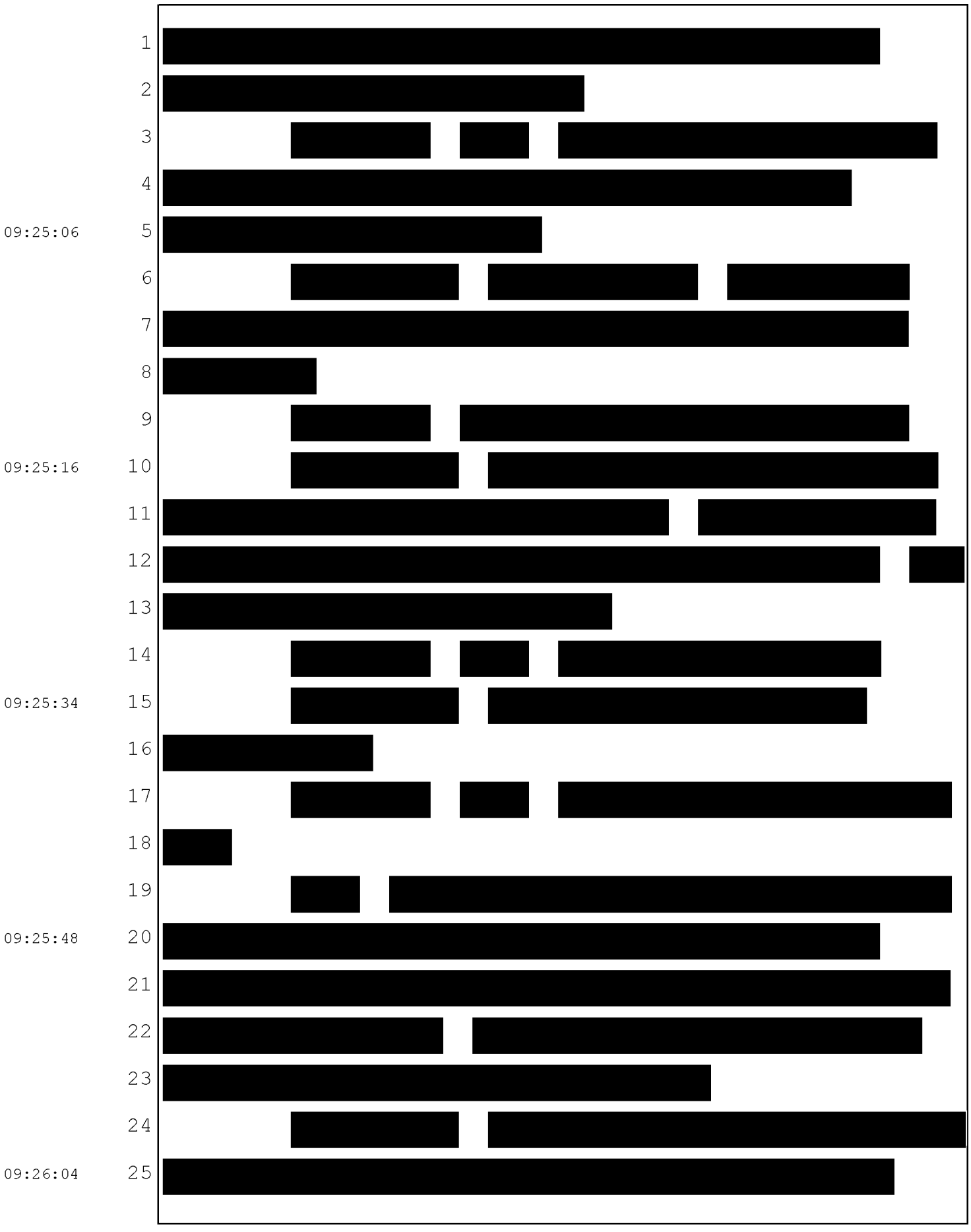
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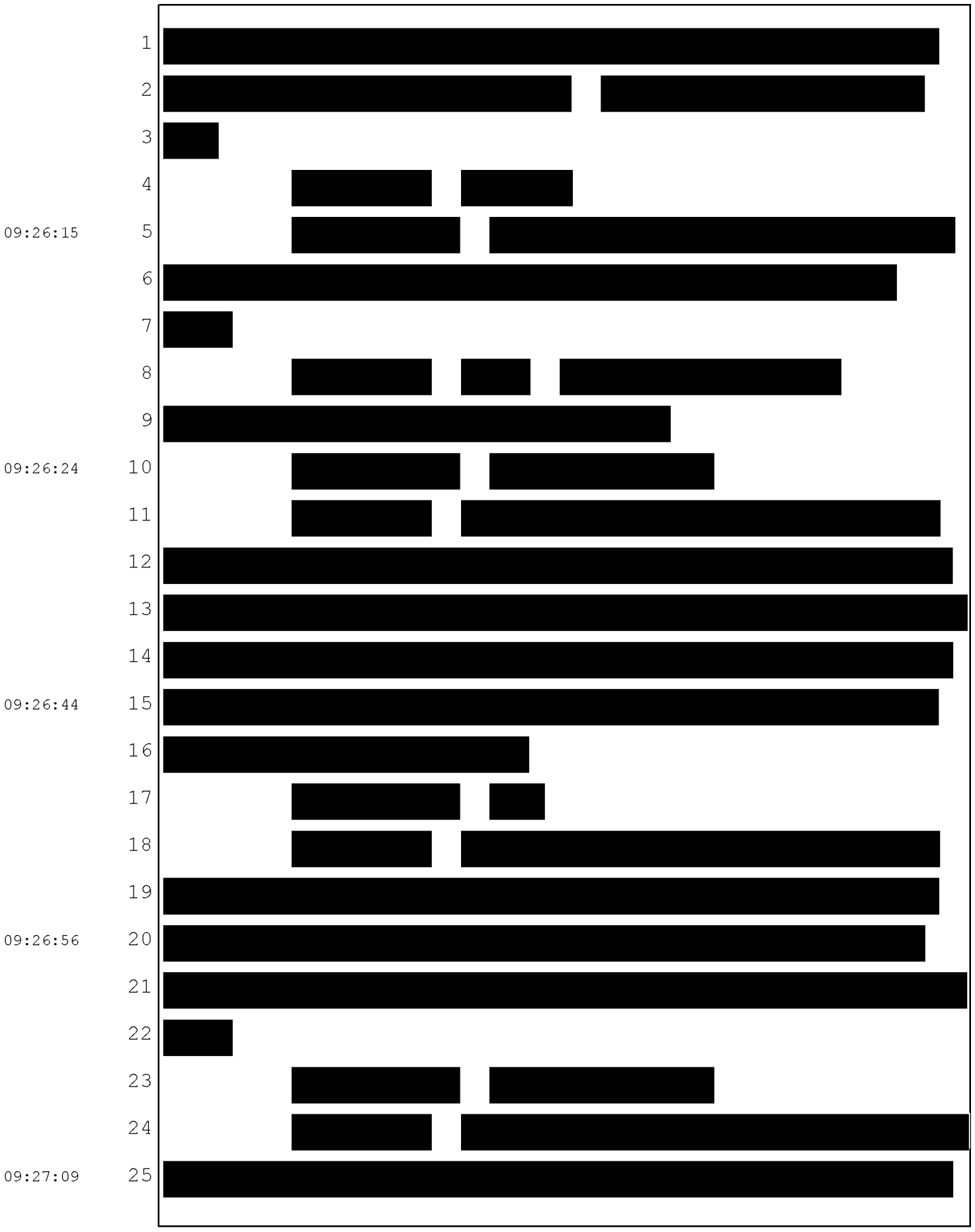
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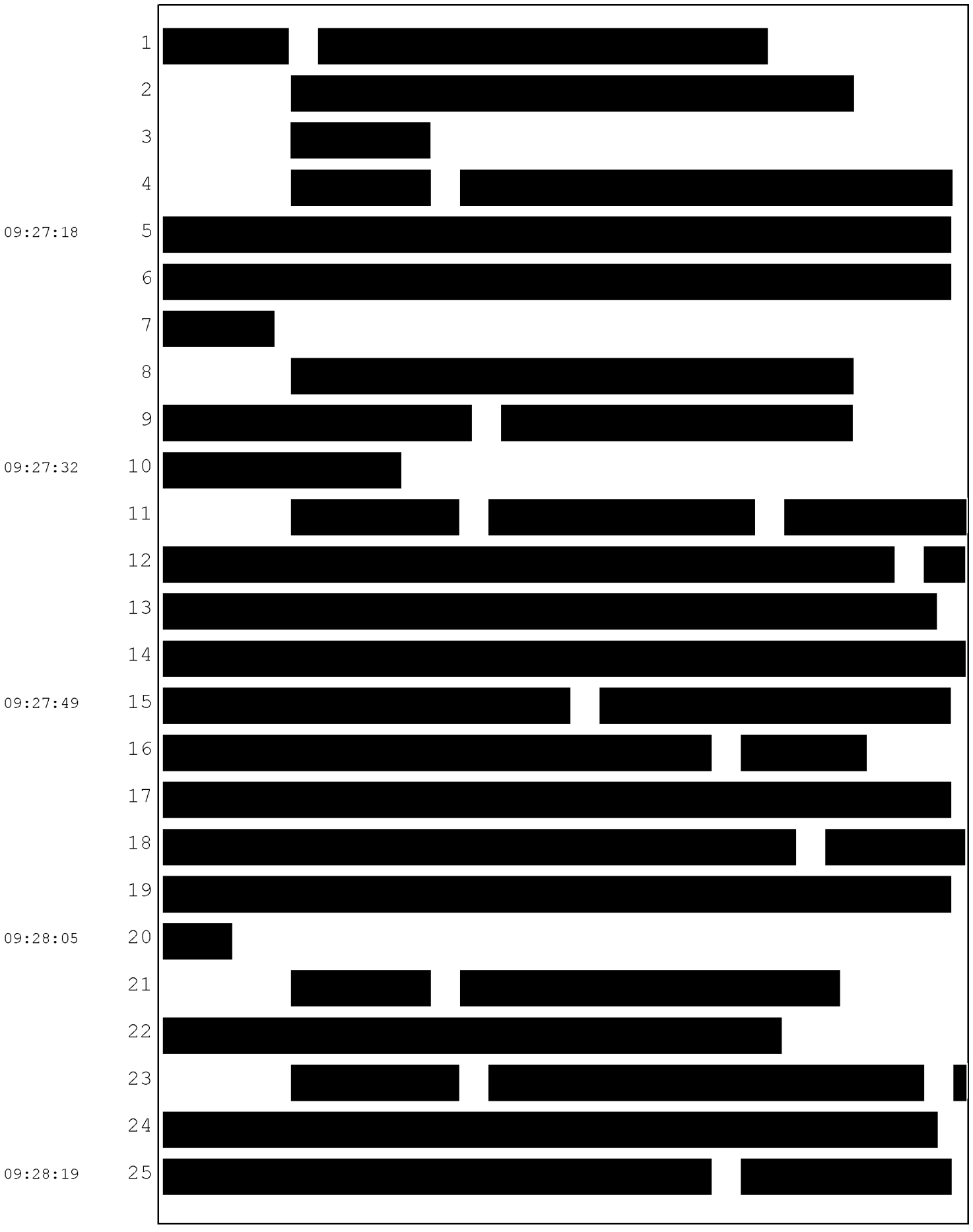
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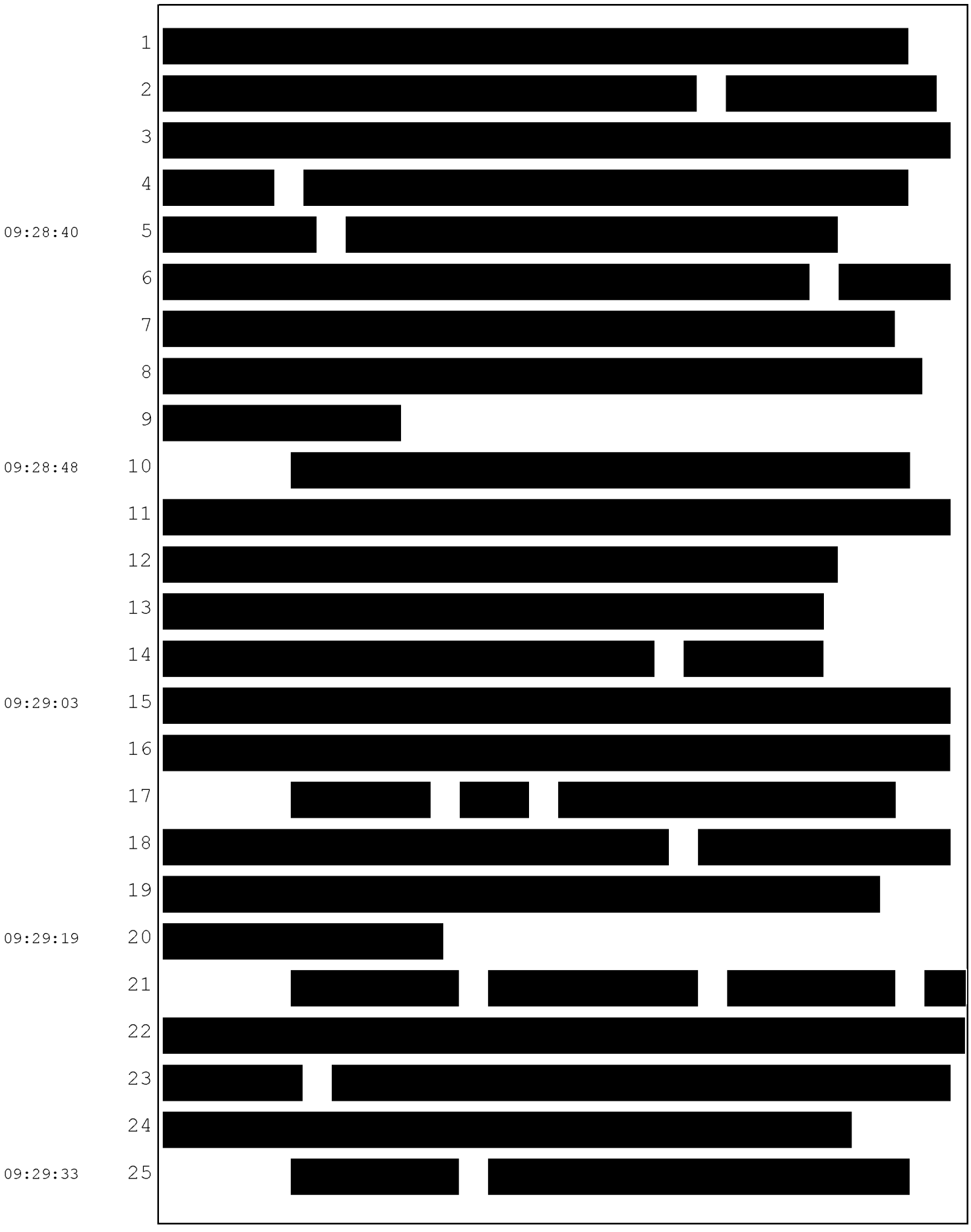
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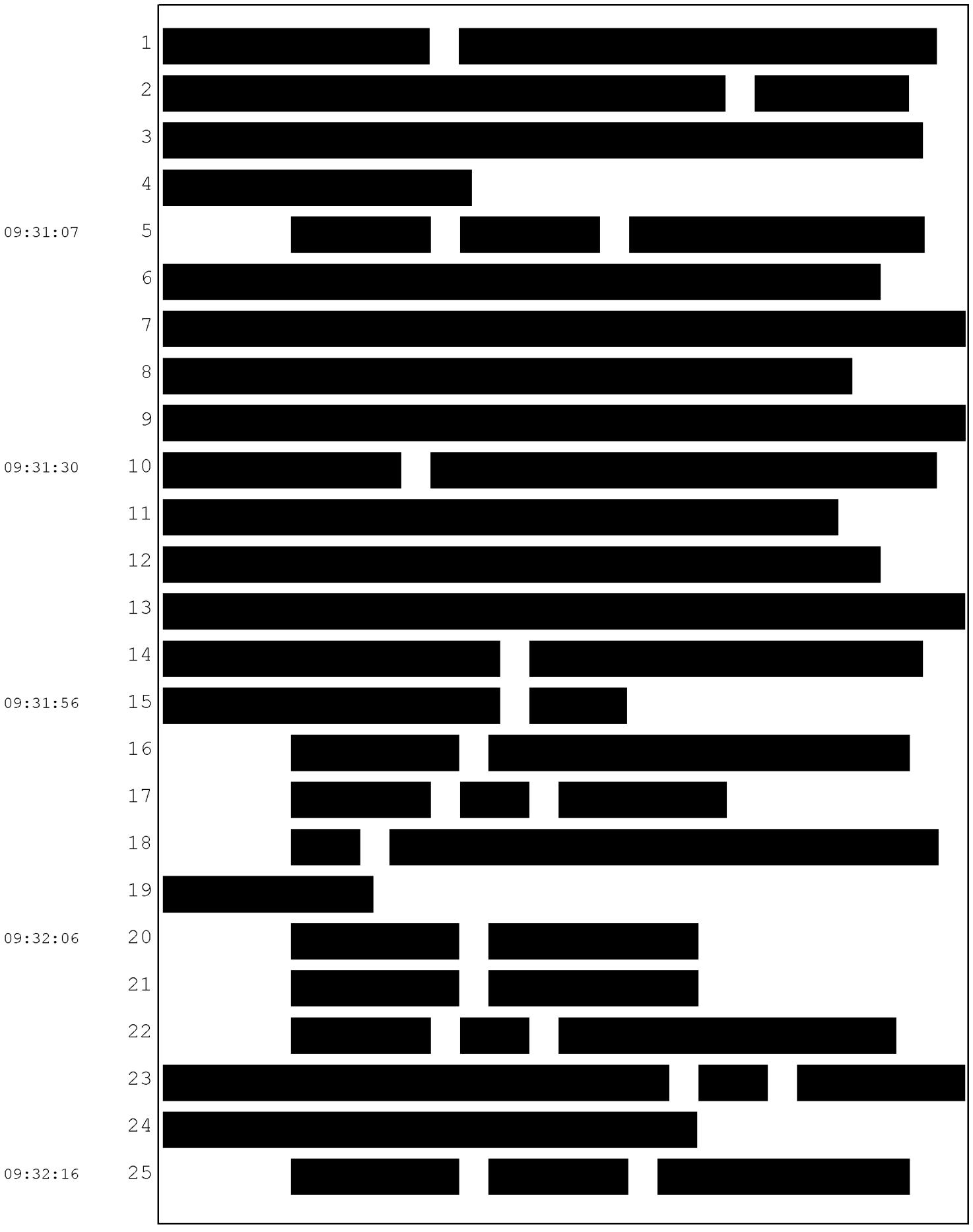
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[redacted]

(Jury enters courtroom.)

THE COURT: Good morning, Ladies and Gentlemen. Welcome back.

Oh, I see we're still missing one of our jurors.

Welcome back, Everyone. And so we will now resume with the plaintiff's case.

Mr. Dickens, you may call your next witness.

MR. DICKENS: Thank you, your Honor.

At this time, we will call Dr. Chadi Nabhan to

the stand.

THE COURT: Very well.

Good morning, Dr. Nabhan. If you would please step up here and remain standing while the clerk swears you in.

09:35:30

THE WITNESS: Thank you.

CHADI NABHAN,

having been first duly sworn, was examined and testified as follows:

09:35:40

THE CLERK: Would you please state and spell your name for the record.

THE WITNESS: Chadi Nabhan, C-H-A-D-I, N-A-B-H-A-N.

09:35:55

THE CLERK: Thank you.

THE COURT: Thank you.

You may proceed, Mr. Dickens.

MR. DICKENS: Thank you, your Honor.

DIRECT EXAMINATION

BY MR. DICKENS:

Q. Good morning, Dr. Nabhan.

A. Good morning.

09:36:05

Q. Can you please introduce yours to the jury, and

tell them a little about yourself?

A. Sure. My name is Chadi Nabhan. I'm a hematologist and medical oncologist. I've been so for the past 20 years. I live in Chicago in the northern
09:36:21 suburbs. I have twin boys turning 11, going on 25. So I'm sure you -- you can you understand the challenges.

Q. It's probably good to get at least a little break from them; is that fair?

A. Yes.

09:36:39 Q. You mentioned you're a hematologist medical oncologist. Do you specialize in any type of cancer?

A. Yes. I've focused my research and my clinical efforts on lymphoid malignancies and leukemia. I've had a small practice. Close to 15 percent of the patients
09:36:55 I've seen have prostate cancer. But the majority of my practice, with lymphomas and leukemias.

Q. When you say "lymphomas," does that include non-Hodgkin's lymphomas?

A. Yes. So Hodgkin lymphomas and non-Hodgkin's
09:37:07 lymphomas. Those are the two major types of lymphomas. And I specialize in both.

Q. I want to just run through, kind of, your educational background. You received your degree -- medical degree in 1991; is that correct?

09:37:18 A. Yes, in 1991. And this was followed by two

years of basic science research at Mass General Hospital and Harvard Medical School in Boston. That's why I'm a Patriot's fan. Now I've lost everybody in the courtroom.

And after that, I did my residency at Loyola University and fellowship at Northwestern. You can go through that.

09:37:41

Q. Yes. When you graduated medical school, you actually were in the top 10 percent of your class?

A. I was.

09:37:50

Q. And then you mentioned your residency. Where did you complete your residency at?

A. My residency was in internal medicine, three years at Loyola University in Chicago. I took a year off after this -- the primary care. I wanted to do general

09:38:04

internal medicine for one year. And I did that in an underserved area in the south side of Chicago followed by a fellowship at Northwestern.

Q. That's Northwestern. What did you do for your fellowship? Can you explain that process? What is a

09:38:18

fellowship?

A. Yeah. So, really, a fellowship, you just specialize in the area of internal medicine that you want to do. So after you finish your residency of internal medicine, some folks may not want to do any specialties,

09:38:34

so they just become general internists or primary care

physicians. Others may want to specialize in cardiology, oncology or rheumatology -- so, again, you specialize in the area of interest.

So I've been always interested in oncology and
09:38:49 hematology, and so that was my fellowship training. It's three years training. And during the last two years of those three years, I did clinical and basic science research. So I worked in the lab as well as in the clinic. I focused on lymphomas, working on the new
09:39:11 targeted therapies and how they induce cell kill in the lab. I worked in the -- with the Cancer Center director at the time.

And part of my research was funded by the National Cancer Institute at Northwestern.

09:39:25 Q. During part of your time in your fellowship, you were actually a chief fellow; is that correct?

A. Yes.

Q. How does one become a chief fellow?

A. So, really, institutions vary, frankly. There's
09:39:36 no set guidelines how each institution does that. At least at Northwestern, it's -- you know, part of the third year, you basically spearhead the scheduling. It's more of administrative work. So you spearhead the scheduling of the fellows, their rotations. You become
09:39:54 more of a liaison between the faculty, the attendings, as

well as the fellows, to make sure the clinics are run on time, the educational agenda is being done properly and, you know, that sort of thing.

So I did a lot of administrative work for the fellows at the time.

09:40:11

Q. And were you actually treating cancer patients during your fellowship?

A. Yes. So my fellowship was in 1999 through 2002. And part of the fellowship training is you actually start treating cancer patients. So you have three half days of clinic, in general, as a first year. Second and third year, you have a little bit less of clinical time. So usually two half days. And you do more research.

09:40:23

So I did see -- started seeing cancer patients specifically in 1999. But, you know, in internal medicine residency, from '95 to '98, you do have a lot of oncology rotations. That's how, actually, I became fascinated by oncology. But obviously it was general internal medicine at the time.

09:40:42

Q. And you've been doing it ever since?

09:41:00

A. Yes.

Q. Are you Board-certified in any specialties?

A. I'm Board-certified in hematology, oncology and internal medicine.

Q. You are licensed in the State of Illinois; is

09:41:09

that fair?

A. I'm licensed in five states: Illinois, Wisconsin, Indiana, Florida and California. You can tell I aspire one day to retire in California, so -- I'm not sure how that will go, but that's really why I got the license in California and Florida.

It takes one winter in Chicago to figure out there are other sunny states out there.

Q. Does -- so you can actually practice medicine in California?

A. I can.

Q. After finishing your fellowship, what did you do next?

A. So I went -- you know, again, I became an attending after fellowship. And I essentially worked in two major institutions in the Chicago area. The first was Advocate -- in the Advocate healthcare system. I was the chief of oncology at Advocate Lutheran General Hospital, the fellowship program director and the medical director of the Cancer Institute.

In that role, I worked on quality metrics for in-patients. I was the liaison between the nurses and the attendings, figuring out how to make sure that we develop programs -- educational programs for nursing, as well as making sure everybody's aligned for per patient

care.

And in the fellowship capacity, I was in charge of training the fellows and developing the curriculum for these fellows. And during my tenure, we had 100 percent board passing rates for the trainees.

09:42:45

In 2013, I was recruited to the University of Chicago.

MR. DICKENS: And just for the record, if I can, our client, Mr. Lee Johnson, has joined us.

09:42:59

Q. Going back, you said Advocate Lutheran. How long were you at Advocate Lutheran for?

A. About ten-and-a-half years.

Q. And then you went on to the University of Chicago?

09:43:10

A. I was recruited to the University of Chicago to lead the clinical operations of the Cancer Center. So I was the medical director of the Cancer Center at the University of Chicago.

Now, University of Chicago is 1 of 42 National

09:43:28

Cancer Institute Comprehensive Cancer Centers. The last year I was there, we had 48,000 cases that went through the cancer clinics and 6,000 -- about 6,000, a little bit less, new cases.

So I was in charge of the clinical operations.

09:43:42

Mainly on the outpatient setting, with a very high

throughput for patients that come in in making sure that the patient experience is actually good, but at the same time trying to make sure that, you know, the care is being delivered in a very concise way between various attendings and various faculties.

09:43:59

Q. While at Advocate Lutheran and University of Chicago, were you treating non-Hodgkin's lymphoma patients?

A. Yes. As I said, my -- again, the majority of my practice was focused on lymphoid malignancies. So non-Hodgkin's lymphoma, Hodgkin lymphoma and some forms of leukemias.

09:44:10

Q. Can you give us an estimate as to how many non-Hodgkin's lymphoma patients you'd be seeing per week?

A. It's very tough. I think I saw more non-Hodgkin's lymphomas -- more lymphomas in the University of Chicago versus the Advocate system. I would say on average would be somewhere between 30 to 40 a week. Obviously this is not new patients. It's all patients. Some of them are returns and follow-ups and others are new. And these are all types of lymphomas.

09:44:26

09:44:42

Q. And that 30, 40, was that at University of Chicago?

A. Right.

Q. Did you see more or less at Advocate Lutheran?

09:44:53

A. No. About -- I mean, the total number of patients was a little bit more in the Advocate system because I had less administrative work. More administrative work at the University of Chicago.

09:45:06 But in terms of the number of lymphoid malignancies patients, about the same.

Q. We've heard some in this case about a subtype called mycosis fungoides. Did you ever treat mycosis fungoides at either Advocate Lutheran or University of

09:45:21 Chicago?

A. I did in both institutions. And I just want to make sure everybody understands that while we keep saying mycosis fungoides, it is non-Hodgkin's lymphoma. It's a form of non-Hodgkin's lymphoma. Sometimes the name might

09:45:35 mask the fact that this is a lymphoid malignancy. Especially it involves the skin, but this is non-Hodgkin's lymphoma. And yes, I have.

Q. And while you were busy treating patients, you actually went and got a Master's; is that right?

09:45:47 A. Yes. To add to the pain, I did decide to go back to school. And in 2014, I went back to graduate school, and I got an MBA in healthcare management, graduating in 2016.

Q. Why did you decide to go back and get your

09:46:02 Master's?

A. You know, when you -- when you spend a lot of time in clinic and taking care of patients, you realize -- nothing will ever, by the way, replace the human interaction, one-on-one, with patients, between the physician or a nurse and a patient. That will never be replaced.

09:46:19

But you start realizing there's really -- there are more aspects of healthcare that impact care delivery for patients than simply being in clinic. It could be finances, could be the economics, could be drug costs, could be many, many things. I think we have all interacted with the healthcare system at some point or another.

09:46:34

And I felt that I needed to get a little bit more of a foundation of understanding healthcare delivery and healthcare economics. And because of this, I went back to get my Master's. I wanted to transition at some point to effect more patients. But more from the business side and the economic side than just being in clinic.

09:46:46

09:47:03

I think affecting care delivery is important, and I felt I needed an education in that. So it was part of my inspiration.

Q. Have you been able to use that Master's and actually transition in your -- in your professional

09:47:14

background?

A. To the extent possible, yes. I took on a role in 2016 leaving the University of Chicago as chief medical officer at CardinalHealth. In my role, I actually sit in the middle between manufacturers and providers, understanding -- I mean, I think we all can understand that manufacturers of compounds that are being used to treat patients affect patient care and providers in their prescribing and how they prescribe and how they manage patients, they also affect patients.

So I sit in the middle, trying to understand the needs of both stakeholders, manufacturers, and providers in how they impact patients, and so I have been hopefully helpful in doing so.

Q. In your new position as intermediary, do you provide physicians information about products from those manufacturers as to the risks and benefits?

A. Yeah. So I mean, in fact, a lot of my research right now focuses on health economics, outcomes, research, patients' reported outcomes. So, you know, I have several papers coming out on patients' report outcomes, which is again, it's -- you know, when you go -- when -- there's a difference between when a physician and a nurse ask a patient a list of questions, what we call the review of systems, versus when a patient

just tells you what the issues are. So focusing on that and how this impacts physicians and their prescribing of these products.

I also focus on these new drugs coming to market. So with these new drugs coming to market, what are the challenges that are faced by either manufacturers or providers.

From the manufacturer perspective, they're faced with the challenges of how to disseminate the information about efficacy, adverse events, side effects, and how these are being managed day in and day out from patients as well as from providers.

On the provider side, you're really faced by figuring out how you get the proper reimbursement for these drugs to make sure you keep your office open. At the same time, which patients need to receive the right drug at the right time in the right place.

So, you know, I think it's very exciting and at the same time challenging. But having the business understanding of how these decisions are being made as well as being in clinic myself for close to 20 years and doing the research, has positioned me, I hope, as effective as I can be. I think we can always try to be more effective as well.

Q. There's a whole section in your CV with respect

to teaching. Have you been able to teach fellows, residents, students in the past?

A. Yes. This is not courtroom teaching. It's different than being in a school, obviously. So I've taught many respondents, fellows, and students. There's a list in my CV on some of the folks I've mentored over the years, over 20 current and practicing oncologists.

09:50:14

And basically these are physicians in training like I once was, and they shadow me in clinic, they see how we interact with patients, how we treat, how we diagnose, we read the literature, we go through the treatment plan, and things of that sort.

09:50:33

In addition, when you are a faculty, you do what we call inpatient attending. So you are the attending of record for patients who are in the hospital, who are being hospitalized.

09:50:48

So if you've ever been in a hospital, sometimes you may not see the physician that treated you in clinic because this person is being covered by somebody else that's the inpatient attending. So oftentimes you do the inpatient and the outpatient.

09:51:03

And I've had the privilege of teaching students, residents and fellows. I don't think there's anything more influential than somebody calling you five years later and saying, you know, thank you, I just thought of

09:51:15

you when I took care of this patient that was very similar to the one we saw before.

Q. And in that teaching role in teaching the residents in a clinical standpoint, were you teaching the diagnosis and treatment of non-Hodgkin's lymphoma?

09:51:31

A. Yes. By default, I mean, this is the most of the patients I obviously see. And so that those were the patients that were seen in my clinic.

And not to brag about, but I also won an award as teacher of the year when I was an advocate, which was a good honor to receive.

09:51:51

Q. That's not too much bragging.

With respect to journals, have you ever published any journals or abstracts?

A. Yes. So I've written a lot of peer reviewed original research, original manuscripts, as well as abstracts and book chapters. In totality, over 300. And they are all listed in the résumé.

09:52:03

Q. How many of those relate to cancer, generally?

A. Hundred percent are cancer.

09:52:18

Q. How many relate to non-Hodgkin's lymphoma?

A. The majority. I would say about close to 80, 85 percent. Over the past year to year and a half, I've published a little bit in about healthcare in general that affect cancer patients, but they may not be specific

09:52:38

for a particular cancer. So -- but again, I'm very interested in healthcare delivery as well. But 80 to 85 percent of these are on lymphoid malignancies and non-Hodgkin's lymphoma.

09:52:52 Q. Have you ever published on T-cell lymphomas, especially on the skin?

A. Not much. I have -- you know, I have coauthored -- I have several papers on T-cell lymphoma in general. As you know, not every T-cell lymphoma affects 09:53:12 the skin. But your question is specific for T-cell lymphoma affecting the skin. I have very few on this.

I've coauthored a review article on management of cutaneous T-cell lymphoma or mycosis fungoides. A couple months ago it came out in print in *Leukemia* 09:53:32 *Lymphoma*. It was online in February or something.

Q. Doctor, we've gone through your educational and professional background. But just generally, is there a reason, why did you become a doctor in the first place?

A. You know, I -- I -- it's the first thing that 09:53:46 attracted me to this is not the science. It's never really the science; it's -- it's the human interaction. It's just the ability to connect with people.

All of us, when we enter the healthcare system, whether for ourselves or with family member or with 09:54:09 friends, we are probably at the most vulnerable state of

mind and health.

We wish we never have to see a doctor or never go to a hospital, but everybody in this courtroom has at some point. And I think if anything, you would want somebody to listen, to understand what the problems are, and just have this human touch. S.

That was really the first thing, and it's something that is -- in my opinion, is not actually present in any other profession.

09:54:42 And then the science, obviously, was more intriguing. Plus I really couldn't be a lawyer.

Q. I am proof of that, Doctor.

MR. DICKENS: At this time, your Honor, we will offer Dr. Chadi Nabhan as an expert in the diagnosis, 09:55:00 treatment, and prognosis of non-Hodgkin's lymphoma, including the causes and risk factors of non-Hodgkin's lymphoma and mycosis fungoides.

THE COURT: Any *voir dire*?

MR. LOMBARDI: No objection, your Honor.

09:55:11 THE COURT: All right. Very well then. I'll accept Dr. Nabhan as an expert in the diagnosis and treatment of non-Hodgkin's lymphoma.

Q. BY MR. DICKENS: Dr. Nabhan, to be clear, you're here today as an expert witness; is that right?

09:55:25 A. I am.

Q. And what were you asked to do in this case in particular?

A. I was asked to assess and evaluate if the patient, Mr. Johnson's condition, which is cutaneous and T-cell lymphoma -- otherwise you will hear referred to today as mycosis fungoides or MF, all of these are interchangeable -- is caused or that whether Roundup or glyphosate -- and again, any time I say "Roundup" or "glyphosate," it's interchangeable term -- was a major contributing factor in the development and progression of his disease, as well as looking at generally at the evidence, whether glyphosate or Roundup is a human carcinogen impacting the incidence of non-Hodgkin's lymphoma.

Q. So it sounds like you undertook a review generally can Roundup or Ranger Pro cause cancer and then specifically to Mr. Johnson.

Is that fair?

A. Yes.

Q. Did you undertake one of those before you moved to the other?

A. Well, of course you take the general one first; right? Because if there is really no evidence that Roundup causes non-Hodgkin lymphoma or is a major contributing factor to the development of non-Hodgkin

lymphoma, there would be no point of looking at any other subtitle, including cutaneous T-cell lymphoma.

Q. What types of materials did you undertake and actually review in rendering or reaching an opinion as to whether or not Roundup or Ranger Pro can cause non-Hodgkin's lymphoma generally?

09:57:00

A. So you really look at the literature, you know, what is published in the literature. You look at epidemiologic studies that have been published in the literature.

09:57:18

You have to keep in mind there is absolutely no perfect epidemiological studies. There's no perfection in these studies whatsoever. There are some that may be better than others, but there is no perfect epidemiologic.

09:57:33

I'm not an epidemiologist, but I can assure you there is no epidemiologist that will ever tell you there is a perfect epidemiologic study.

Nonetheless, I reviewed the epidemiologic studies. Some of them were positive in terms of association and causality; some of them were negative in terms of association or causality. So you have to look at the total body of evidence, the positive and the negative.

09:57:47

09:57:56

I reviewed some of the animal studies and

toxicology studies. I'm not a toxicologist, but again, you just try to review some of the things that were available.

And then you have to really try to put your clinical hat on. Ultimately, I don't treat numbers, I don't treat Excel spreadsheets, I don't treat P values or none of these things.

When you treat people, when you look at a patient in the eye, you're not going to look at, well, I'm sorry, this is not really a problem because the odds ratio is not over a certain limit.

From a patient perspective, as a clinician, you have to take all of this body of evidence in context of what's impacting patients, and then you have to figure out whether this is positive or negative.

So if you recall, it took me several months before I said yes. I reviewed the evidence, and I believe that there is causality before I accepted.

Q. And have you ever testified at a trial before?

A. This is my first time in trial so if I'm a little bit nervous, I apologize.

Q. In reviewing or deciding whether something can cause something, why did you review more than just the epidemiology if you're just treating humans?

A. Well, I mean, again, you just have to -- I think

to be fair, you have to review whatever is available, and you have to try -- you have to put the clinical hat on at the end of the day because, again, you are the one in front of a patient who is going to ask you these questions.

So, you know, some of -- some human studies are just not going to be perfect. So you may be able to support these human studies by animal studies that were done.

09:59:56 I mean, you're never going to find a randomized control trial where you take a hundred patients and they say I'm going to actually expose you to Roundup. And a hundred patients and say I'm not going to expose you to Roundup.

10:00:10 Q. And why is that, Doctor?

A. It is unethical. This is not something that you would do because there's a potential harm. I mean, when you do a randomized control trial, even if you don't believe that the harm exceeds whatever threshold, if

10:00:23 there's a potential harm, you can't really put patients and say, you won't be exposed, you would be exposed, we'll see what happens in two years or three years and see what happens. That doesn't happen.

And I'd like to see anybody in this room who

10:00:38 would be willing to volunteer for a trial like this.

Nobody would volunteer for a trial like this, even the manufacturer of Roundup.

So again, I think it's important to look at that in context; right? So in the absence of randomized control trials to tell you, you go into epidemiology studies, case-control studies, et cetera, and animal studies and toxicology studies.

10:00:53

Q. And that's something you would do just in your general practice for patients; right? You wouldn't just look at the epidemiology?

10:01:07

A. Yeah, I mean, sometimes in general practice you may not know. I mean, a patient can ask you a question. I mean, no physician should ever claim that they know everything. You get asked a question, and you say, you know, I'm not 100 percent sure, but let me look it up. Let me just check and -- I mean, I would hope that you one day ask a physician, hey, you know what, I'm not 100 percent certain, but look things up and I'll research for you, I'll get back to you in a couple of days. I'll give you a call.

10:01:18

10:01:33

This happens a lot because we don't claim that we know every single thing.

So it's appropriate not to know, but I don't think it's appropriate not to research and figure it out and try to come up with a conclusive answer because

10:01:45

ultimately we just -- we all have to remind ourselves what's at stake here is patients who could be involved with deadly cancer. That's really what's at stake. We're not dealing with anything short of that.

10:02:02 Q. In addition to your own review of all those materials, did you review any conclusions by any types of agencies or organizations?

A. Yeah, I mean, there was -- I mean, I presume this has been covered with prior witnesses. I reviewed 10:02:17 the IARC, obviously. I looked at some comments that came from the EPA, which I wholeheartedly disagree with.

But these are organizations that have actually looked at the evidence critically and they came up with the conclusions of association between -- of pending 10:02:40 hazard compound and cancer.

Q. And after your review of those materials, did you reach a conclusion or an opinion as to whether or not Roundup or Ranger Pro can cause non-Hodgkin's lymphoma?

A. It can cause non-Hodgkin lymphoma. It doesn't 10:02:59 you cause all non-Hodgkin lymphomas, and not every patient who is going to use the compound is going to develop non-Hodgkin lymphoma. But it absolutely can cause non-Hodgkin lymphoma.

Q. Is the same true with respect to we talked about 10:03:10 the subtype mycosis fungoides. Is that the same true

with respect to mycosis fungoides?

A. Again, remember what mycosis fungoides is, as I said, as much as we keep saying mycosis fungoides, it is non-Hodgkin lymphoma. It is non-Hodgkin lymphoma.

10:03:26 So what applies to the general umbrella of non-Hodgkin lymphoma -- and there are so many types of non-Hodgkin lymphoma, which I have always told my fellows, and I always joke with them, and I say, it's job security because not everybody is going to know all types

10:03:42 of non-Hodgkin lymphoma. That's why I was getting referrals from all over Chicago area.

But everything from an epidemiology standpoint and etiology standpoint, there are certain things that may apply to all non-Hodgkin lymphomas and certain things

10:03:56 may apply to subtypes of non-Hodgkin lymphomas.

When you look at some of the etiologic factors, that epidemiologies to T-cell non-Hodgkin lymphoma as well.

Q. And that's an opinion you hold to a reasonable

10:04:07 degree of medical certainty?

A. Every opinion I'm stating today I hold with a reasonable degree of medical certainty.

Q. We talked generally. What types of materials did you review specific to Mr. Johnson and whether or not

10:04:22 Roundup or Ranger Pro caused his cancer?

A. Well, thousands of medical records. I reviewed the medical records of Mr. Johnson's here at Kaiser, at Stanford, and UCSF, University of California at San Francisco. I reviewed some of the correspondence with his employer in terms of what has happened during his employment, a little bit of employment history, but essentially really the medical records, the treatment, and his exposure to Ranger Pro.

10:04:45

Q. You reviewed all those medical records, thousands of them?

10:05:05

A. I did.

Q. Were you able to read all the handwriting, Doctor?

A. It took many hours, and I had to get a new pair of contacts after that because my computer.

10:05:14

Q. Did you do anything else prior to rendering or reaching a final opinion with respect to Mr. Johnson?

A. Well, I also had a chance to meet him in person. Mr. Johnson was able to fly to Chicago, and we met in October of 2017. And we talked for an hour, two hours about his case, his condition, what he has gone through, as well as the chance to do a brief physical examination.

10:05:32

Q. Is that the type of meeting consultation and examination you would have done generally for a patient of yours?

10:05:54

A. Generally, but I just want to make sure it's clear: I don't have a patient-physician relationship with Mr. Johnson. I am not a treating physician. I am not one of his doctors. I provided this in a consultive
10:06:12 manner, and he agreed, and that's really the nature of the interaction. And it happened only once in October of '17.

Q. Why did you think it was important to actually see Mr. Johnson and examine him?

10:06:25 A. You know, no matter how much you read, you know, progress notes and physical exams and all of these charts and so forth, again, I hope we can all agree that nothing replaces one-to-one interaction, just trying to understand from the person himself what he has gone
10:06:45 through, trying to go a little bit through some of the exposure and employment history, although I did notice that Mr. Johnson was a little bit forgetful.

So there are certain things that he would mention to me that I -- were just different dates in the
10:07:02 medical records. So -- and he admitted that he was becoming -- he was a little bit forgetful in terms of the sharpness or the menthol acuity in remembering certain events and certain dates.

Q. Is that unusual for a patient? You treat lots
10:07:16 of cancer patients.

A. It varies. I mean, really it varies. I think that some patients are always very sharp and to the T, despite chemotherapy despite all the treatments that they receive and so forth and it's amazing. And others are not others. There are other things that are maybe affecting or cloud their memory.

10:07:35

I think you've all heard the term "chemo brain," and chemo brain is something that actually exists. It's actually a real thing. But it varies. I mean, I've seen patients that never had any problems and others that do.

10:07:45

So it's not unusual for patients not to remember every single particular detail or Tuesday at 7 a.m. and Wednesday at 9 p.m., I did that.

But it's also important in terms of prognostication for -- you know, for an oncologist. I think that a patient who is able to drive to the airport, get on a four to five-hour flight from San Francisco to Chicago, spend the night, get a car, drive to see me, go back to the airport and so forth, is probably different than somebody who would say, I'm just too tired to get on a plane. Right? I mean, I think just common sense.

10:08:01

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So I think when you are just sitting across the table from a patient, you know, not all patients are created equal. It may be the same disease, but the way you assess things are a little bit different based on

10:08:34

what we call in oncology performance tests, how the person is able to do certain things.

And it just gives you -- it doesn't change the fact that the patient has the disease. It doesn't change the fact that what the treatment he's getting, but it may separate the fact that this patient might do better than others or worse than others and so forth.

Q. Has Mr. Johnson done better than you would have initially anticipated from your initial review of the medical records?

A. He did exceed my expectations in terms of the overall prognosis. I think the prognosis remains as -- I don't know. I want to be very respectful of Mr. Johnson. I'm not sure if -- I mean, how much do I discuss prognosis?

Q. And we can get into the additional prognosis later.

A. Sure.

Q. We can have a conversation with Mr. Johnson as to whether or not -- maybe he wants to step out of the room. But we'll get to that later.

A. But he did -- I mean, to answer your question, initially looking at the records and looking at the biopsy results and what he's gone through, I thought that the overall outcome would be significantly worse than

what it currently is. It doesn't change my ultimate impression of the prognosis; it just probably shifts the curve differently.

Q. After all of your review and your examination and your meeting with Mr. Johnson, did you reach an opinion to a reasonable degree of medical certainty as to whether or not Mr. Johnson's, specifically his non-Hodgkin's lymphoma, was caused by his exposure to Roundup and Ranger Pro?

10:10:05

10:10:18

A. Roundup and Ranger Pro are a major contributing factor to the development of Mr. Johnson's cutaneous T-cell lymphoma or mycosis fungoides.

Q. You said major. It's a substantial contributing factor, in your opinion?

10:10:39

A. Yes.

Q. Maybe we should take a step back. We've heard a lot about non-Hodgkin's lymphoma, and it sounds like you're the one to ask. Can you just describe: What is non-Hodgkin's lymphoma?

10:10:47

A. You know, I'm going to step back and just explain what cancer is in general. Just in general; right?

Cancer is overgrowth of cells. So every organ in our body, every single organ in our body is composed of cells. If these cells grow in an uncontrollable

10:11:06

fashion and they don't go through the normal cycle of living and dying, these could become tumors, and some of these tumors are malignant.

Based on the area or the organ where these cells
10:11:24 grow, some people have breast cancer, prostate cancer, ovarian cancer or colon cancer, but ultimately what cancer is, is overgrowth -- uncontrollable growth of cells. That's really what it is. And that's why not all cancers are created equal.

10:11:39 That's really why when people say, well, can't you cure cancer, my answer is, well, which cancer are we talking about? Because we cure many cancers and many cancers we don't. So that's what cancer is.

Non-Hodgkin lymphoma is a form of cancer that
10:11:55 affects in general the lymph glands. So we all have lymph glands. You can feel your neck, wherever it is. We all have lymph glands. Non-Hodgkin lymphoma in general affects lymph glands in our body, but in some scenarios it could affect organs that have nothing do to
10:12:18 do with lymph glands. We call that extranodal. So it's not in the nodal area, not in any of the lymph nodes.

It could affect the skin. I've seen non-Hodgkin lymphoma affecting the skin, the uterus, the kidney, the thyroid.

10:12:30 So it could go to organs that have nothing to do

with lymph glands because these cells originate in the bone marrow. The bone marrow is the compartment inside the bone. It produces lymphocytes. It produces all of these cells. And these cells come out, and they
10:12:49 circulate in the blood, and generally they go to the lymph nodes and they grow, but as I said, they could go to other organs. And that's the extranodal component.

So what Mr. Johnson has is extranodal. It didn't really start in the lymph nodes; it started in the
10:13:06 skin. So it's -- that's why it's called cutaneous lymphoma.

So again, just, you know, big picture what cancer is, what non-Hodgkin lymphoma is, it's a form of cancer that involves the lymph glands, and there's the
10:13:18 extranodal component.

So as I said, you know, from a patient perspective, you'll always remember, well, how can I get lymphoma in the thyroid gland? It's not thyroid cancer. No, no, this is lymphoma. It just happened to go to the
10:13:35 thyroid gland.

Q. Other than extranodal, are there other types of -- I mean, what are the types of non-Hodgkin's lymphoma?

A. So and then when you look at non-Hodgkin
10:13:41 lymphoma in general -- so this is in general. Any

non-Hodgkin lymphoma could do that, by the way. But broad category, non-Hodgkin lymphoma is divided into B-cell non-Hodgkin lymphoma and T-cell non-Hodgkin lymphoma.

10:13:57 Generally speaking, T-cell is worse than B-cell. Frankly, the main reason I think is because B-cell was easier to diagnose over the year than T-cells and it's more common than T-cells. The treatments that were developed were more effective against B-cell. But these

10:14:16 are the general types, B-cell and T-cell.

Today we believe there's at least probably 70, 7-0, types of non-Hodgkin lymphoma. In 2016 the last classification from the WHO that there's probably been 40 to 50 types of B-cell and close to 20 types of T-cell;

10:14:40 right?

So this is how many we've had. This isn't -- we didn't know that 20 years ago or 25 years ago. It's just science and understanding the subtypes is very important. And in fact, the fact that we have that many types of

10:14:54 non-Hodgkin lymphoma tells you why it is impossible to do an epidemiologic study for every single subtype of non-Hodgkin lymphoma.

Number one, the classification that we know in 2016 was not the same in 2008. It was not the same in

10:15:13 2001. It was not the same in 1995. So it's actually

changing. Our ability to diagnose and to treat and prognosticate, thankfully for patients, are actually much better than before.

Q. And I believe you talked about those 70 subtypes. You actually provided a demonstrative exhibit; is that correct?

10:15:27

A. Yes.

Q. If you can turn to the back of -- you have a binder in front of you, Plaintiff's Exhibit 1036. I believe it's the back, maybe one of the last two.

10:15:38

A. Yes.

Q. Can you identify what that document is, Doctor, in your binder?

A. Oh, this is the -- it's label as Table 1. It is the WHO Classification of mature lymphoid, histiocytic, and dendritic neoplasms. These are the types of lymphomas that we currently have.

10:15:57

So when a patient comes in --

Q. Thank you.

MR. DICKENS: Permission to publish, your Honor.

10:16:08

THE COURT: Are you moving this or just asking to publish?

MR. DICKENS: Just asking to publish.

THE COURT: All right. Any objection?

MR. LOMBARDI: No objection.

10:16:17

THE COURT: All right. You may publish.

THE WITNESS: So this is Table 1.

And if I may, just again, one look at this, you will see the many types of non-Hodgkin lymphoma that we deal with. And just, you know, you can scroll up and down, and you see how many types we are dealing with.

So when a patient comes in into the exam room or sees a physician, we need to know which one are we dealing with, because this actually affect the prognosis and the treatment.

But for the most part, when we look at non-Hodgkin lymphoma in general, in totality as a disease, from what could cause it, what could affect it, you know, we look at many factors that could affect of all of these types of non-Hodgkin lymphoma. Some of them might affect one or the other more, you know, specifically, but we look at this in totality.

You know, today in 2018, we know there are several types of breast cancer; right? It's not actually the same. There's are breast cancer that are hormone are receptor positive, some of them hormone receptor negative. But when you look at what causes breast cancer, you look at breast cancer in totality.

The same applies for prostate cancer. We just happen to know better today the different subtypes of a

particular disease, but it doesn't take away that when you look at etiology, at causality, you look at the entire umbrella, you look at the entire disease.

And this is not that table that we had -- when I
10:17:43 went to training, this is not what we actually knew.

Q. BY MR. DICKENS: What did you know at that point?

A. Well, we had actually the -- my favorite was the easiest-- the real classification, and that was in
10:17:54 the mid-'90s to late '90s, it was the easiest to remember and it was actually the easiest to explain to patients versus this.

I still take from that classification a few points to explain to patients in simple terms that when
10:18:11 we look at non-Hodgkin lymphoma, we said B-cell and T-cell; right? I mean, this is what you see here, B-cell and T-cell on the table. B-cell and T-cell, T-cell some of them are indolent, some of them are aggressive.

So you'd see some indolent T-cell, some
10:18:29 aggressive, some independent T-cell. Some indolent B-cell, some aggressive B-cell.

What "indolent" means is that sometimes it may not behave very aggressively. Sometimes it's there, it's slow growing, we may not cure it, but it's not behaving
10:18:43 aggressively. It's not life-threatening immediately. It

may be imminent, but patients could live for a longer period of time.

Aggressive, obviously it's the opposite. It could actually be very life-threatening where you have to intervene right away, you have to do the treatment right away and so forth.

10:18:55

So even to this day, when you look at this very complicated table, you will see that some are indolent and some are aggressive. And I try to explain that to patients.

10:19:10

Q. Mr. Johnson, do you know, does he have indolent or aggressive type of cancer?

A. So generally speaking, when you deal with cutaneous T-cell lymphoma or mycosis fungoides, in general, it should be an indolent type of cancer. In general, a lot of patients, actually, they should be able to live with this type of disease for ten years plus, generally speaking.

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You know, in classic teaching, if I have a student I'm teaching, that's what I would say.

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But then that's what the books say, and then you look at the actual behavior of the particular disease for an individual patient.

And the way Mr. Johnson's disease has been behaving over the past several years is far from

10:19:48

indolent. It is behaving in an aggressive manner. It is not responding very well to therapy, and even with the treatments that he has responded to, the response duration is short.

10:20:02 You would like to have someone who responds to treatment and go on for one to two years, not requiring any therapy. And then they come back maybe, and then you do another treat, and it just goes back for two years and so forth. This is not what's happening.

10:20:17 So generally speaking, it should be indolent, but his particular case is far from indolent.

Q. And if we look at the demonstrative here, I've highlighted mycosis fungoides. That's just one of those 70 subtypes; correct?

10:20:30 A. Yes.

Q. That's a T-cell lymphoma?

A. Yes. In fact, yeah, you will see -- if you scroll, you will see that it's listed see here, mature T and NK neoplasms. So it is under T-cell lymphoma. So

10:20:42 from here on, in the second part of the table and so forth. So yes, it is a T-cell lymphoma.

Q. And I want to take a step back to something you said earlier with respect to reviewing epidemiology for all of these different subtypes.

Do we need actual epidemiology on subtypes to

know if it causes cancer?

A. You know, we would like to if we can. I mean, at the end of the day it would be wonderful if we are able to do many epidemiologic studies for every single subtype of these 70 types of non-Hodgkin lymphoma.

10:21:12

The reality is number one, we can't, for a couple of reasons. Because as I told you, the classification has changed. So how do I know that if the type of disease that I thought I was looking at in 2005 is the actual disease. Because my ability to diagnose that disease has changed. It's not actually the same. So the accuracy is not going to be there.

10:21:31

At the same time as I told you, when you look at specific etiology or causality or contributing factors, you can, from an epidemiologic standpoint, look at the entire category of diseases in its entirety as non-Hodgkin lymphoma.

10:21:49

No one will be able to tell for every single subtype design specific epidemiologic studies, because the classification has changed. The classification has changed.

10:22:07

This is 2016. I promise you it's going to change in the next couple of years. You know, we have in December -- every December we have the American Society of Hematology meeting coming up in December, and I'm

10:22:21

speaking at that meeting. And you will see some new data that tell me we can even diagnose differently. So you can't. And I gave you an example of breast cancer or prostate cancer that we study the etiology differently.

10:22:37 Now there are some studies that attempt to do that. I mean, there are some studies that looked at specific categories to see if, you know, you're able to link an occupation to a particular subtype and so forth. And these studies are excellent, and they're commended, you know, the authors to be able to do this.

10:22:52 But I don't think it's a realistic expectation to say I'm not going to believe the epidemiology literature because it did not look at this specific subtype. Because that subtype did not exist ten years ago so how could they look at it?

10:23:08 Q. So with that said, how did that affect your review of the literature in this particular case when you're trying to determine out can Roundup or Ranger Pro cause cancer?

10:23:20 A. It did not change my conviction.

Q. So you can rely on the epidemiologic studies of non-Hodgkin's lymphoma generally?

A. And you should.

Q. And that's what you did?

10:23:29 A. Yes.

Q. Mycosis fungoides, how do you diagnose that? What do you look at?

A. So any type of lymphoma -- actually any type of cancer, you can never diagnose cancer on an X-ray, you
10:23:44 can never diagnose cancer on physical exam. You can suspect cancer on exam, you can suspect cancer on X-ray. But ultimately you have to do a biopsy of the particular area that you are questioning.

You have to do a biopsy, you have to examine the
10:24:01 cells under the microscope. You have to color these cells definitely. You have to look at them. And without doing this, you can never diagnose any type of cancer, not to mention obviously including non-Hodgkin lymphoma.

So in this particular disease, usually it's done
10:24:18 with a skin biopsy. It is not uncommon for this diagnosis to be challenging. It is actually more typical than not that there's a little bit of a struggle for pathologists and oncologists to have the immediate diagnosis.

10:24:34 It is not unusual for somebody who comes into the office and the doctor says, you know what, this looks like an eczema, just put some hydrocortisone cream from Walgreen's and, you know, come back. It's not unusual because you don't always suspect it that this is, number one.

But the reality is oftentimes these treatments don't actually work, and ultimately, a patient gets a biopsy, and this biopsy is looked at. And sometimes the biopsies also are not conclusive, and you do another
10:25:04 biopsy or you do another coloring and so forth.

So I mean, I have seen patients that could take them a couple months until you get a final diagnosis and you're able to proceed with treatment.

And I can tell you it's a very -- it's a very
10:25:17 difficult time for patients and families because on the one hand, you still don't know what you're dealing with. You're actually very uncomfortable skin wise, and you want to have a plan. I mean, just any type of plan is always better than having no plan.

10:25:32 So I've always cautioned my lymphoma patients, because this also is challenging for other types of lymphomas, and I've always said it might take a little bit of time until we get the diagnosis. Always manage the expectations. Because it's much easier to say, okay
10:25:47 I understand they're looking at it and I'm waiting to get the diagnosis. This is very typical and classic.

Q. As a treating physician, do you actually try to determine what could possibly be causing one of your patient's of non-Hodgkin's lymphoma?

10:26:00 A. You try. Oftentimes you fail as an oncologist.

In fact, for the most part, any time you're dealing with non-Hodgkin lymphoma, you -- you know, anybody in this room -- God forbid, anybody in this room, if they have cancer, I guarantee you the first question you will ask
10:26:15 an oncologist is why did this happen to me? This is the first question that gets -- that got asked to me from every single patient I've seen.

Sometimes you actually don't know. And frankly, with cancer and with lymphoma, for the most part, you say
10:26:32 I don't know. Sometimes you do. But you do ask the question, you try to figure out if there are any associated causal factors, contributing factors. Because if anything, that will lead to an intelligent conversation that you have with the patient and the
10:26:47 family. It might allow you to have better counseling with the patient and the family and other family members.

And if you're suspecting a genetic issue, you could test family members if there's a chromosome or there's a particular gene that might be involved, again,
10:27:04 there are opportunities to counsel patients.

If they're being exposed to an agent that may be causing the cancer, you would tell them not to be exposed to this particular agent because it could make the cancer worse or it could cause another cancer.

10:27:21 Have you -- I mean, I'll contrast an example.

If a smoker goes to the doctor after they get diagnosed with lung cancer, do you see the doctor telling them, it's okay, you've got the lung cancer, you can keep smoking, you've already got the cancer? No. You tell
10:27:37 them, you know what, we believe that tobacco contributed to your lung cancer. We think you should stop because it could make your current lung cancer worse, it could lead to another cancer, such as bladder cancer or another lung cancer, it could lead to head and neck cancer and so
10:27:53 forth. I mean, this is just proper counseling.

So you ask these questions. Unfortunately, we are limited sometimes. But in situations where we are not limited and we are able to identify a problem, I think it's -- it's obligatory for us to help patients.

10:28:05 Q. So it sounds like, do you think having information about possible cause, that's important to you as an actual treating doctor?

A. Yes. And I mean, otherwise why do we actually ask patients -- I mean, you've all been to the doctor at
10:28:18 some point. They do ask you do you smoke, do you drink, have you ever used drugs, what do you do for a living. Don't they ask these questions?

So the reason I hope your doctors are asking these questions is to figure out if there's any
10:28:33 opportunities to counsel you. I mean, any nurse would

ask this question, any nurse who's taking care of a patient, who has seen a patient in the hospital, they sit down with the patient. And nurses always spend better time with patients than we do. But at the end of the day, they ask these questions.

So if we're asking these questions unnecessarily, then we probably should stop. The reality is we're asking these questions for a purpose. Because sometimes you identify a reason and you're able to talk to a patient.

Physicians ask a patient, do you have any family members who are affected by cancer? Why are we bothering by asking these questions? If we really don't care and we don't think there are any factors that may be contributing to cutaneous T-cell lymphoma, why would we ask these questions to lung cancer or any cancer?

Q. How do you go about narrowing it down to possible or actual causes?

A. As I said, for the most part, you know, many times you don't have any -- you know, you have these questions and you can't find a clue. And you tell a patient, I don't know why this actually happened to you, but let's focus on what we are going to do about it. If things change and I can find anything that tells me why this actually happened, then we can figure out what to

do. But at the end of the day, our goal is to get you through the treatment, and let's just focus on what we have at hand.

Q. Have you heard of the term "differential diagnosis" in trying to determine --

10:29:52

A. Yes. But for some situations where we have several possibilities, we look at other causing factors that may be contributing to this particular cancer and we try to delete them.

10:30:03

I mean, if we have ten possible factors that may be contributing to a form of cancer, you look at these ten factors and you say which of these ten factors apply to the patient I have in front of me, and you delete the ones that are not associated or they're not proven, and you are left up with one or two or three or whatever factors you're left with that may be related to the disease.

10:30:20

Q. In turning to your general causation opinions in this case, you do hold an opinion as to whether or not Roundup and Ranger Pro can cause non-Hodgkin's lymphoma; correct?

10:30:33

A. I do.

Q. Okay. And what is that opinion?

A. It can cause non-Hodgkin lymphoma.

Q. You mentioned the materials you reviewed. One

10:30:42

of them I think you said was IARC. Can you tell us what IARC is?

A. IARC stands for the International Agency on Research of Cancer. It's a -- it's an agency that is a subdivision of the WHO, which is the World Health Organization. It was formed somewhere in the late '60s, early '70s.

It is composed of independent scientists, independent scientists. They are not paid. These scientists do not get a dime for the work that they actually do.

And what they do is they review evidence that actually exists on possible association of particular compounds and cancer.

So they usually start looking at the evidence of literature a year before. They form working groups that they look at epidemiologic studies, animal studies, toxicology studies, mechanism-of-action studies, and then they meet in person in Leon, France. And they convene together, and they come up with a statement as to whether a particular offending hazard causes cancer or not.

IARC is very transparent. They have -- they actually -- many independent folks can come and review the process of what they actually do, but they will only review the published literature that is enough to

actually form an opinion.

And since its formation, by the way, just to be clear, IARC has reviewed over a thousand compounds, 1003 to be exact, and determined only 20 percent of everything they reviewed to be either carcinogen to humans, which is group 1 or group 2A, which is probably carcinogen.

10:32:23

So 80 percent of what IARC reviewed was proven not to be a carcinogen. So IARC is not out there to get you; IARC is out there to help you.

10:32:45

There's no conspiracy theory about IARC here. They are obviously not -- I mean, they've rejected 80 percent of the compounds that they've reviewed. And order for IARC -- in the way, in order for IARC to even accept to review any compound, there should be enough human exposure and there should be enough evidence from animal studies to suggest that they might cause cancer.

10:33:02

And despite all of this, 80 percent of what they reviewed did not pan out to be related to cancer. So there's no conspiracy theory about IARC.

10:33:18

Q. Is IARC a reputable source for determining causes of cancer in the medical community?

A. I can't think of any more reputable source that is impartial, non-biased, and unpaid. These are scientists that take time off their schedule to do this uncompensated. They're just pay for their flights and

10:33:34

their accommodation in France.

Q. But Doctor, hasn't IARC found hot drinks to be a cause of cancer?

A. Well, certain hot drinks are absolutely causative of particular cancers. Yes, that's something you counsel patients about. So extremely hot beverages, extremely hot beverages -- it's not the beverage; it's the temperature; right?

So if you drink extremely hot coffee, extremely hot beverages causes irritation to the esophagus and the stomach. And there's a known risk factor of these high-temperature beverages in association with esophogeal cancer. It's something you counsel patients about.

It's actually the reason why esophogeal and gastric cancers are more common in Asian countries because of the extreme spices that they actually do and these very hot beverages.

So it's not the beverage; it's the temperature that's causing this.

And if you're referring to the coffee -- coffee issue, if you read the IARC Monograph about coffee, it says it's the extreme temperature of the coffee that increases the risk of esophogeal cancer, which is absolutely true.

And when they talk about coffee in general, it's

a group 3. It does not cause cancer. So you can have your Starbucks all you want. You have no problem. Or Dunkin' Donuts.

Q. Great. Good to know.

10:34:54 Did you actually review IARC's conclusions and Monograph in this particular case?

A. I did, of course.

Q. Is that something you relied upon in reaching your conclusion?

10:35:03 A. Yes.

Q. If you can turn to Exhibit 784 already in evidence. It should be in your binder, Doctor.

Is that the Monograph that you reviewed in relation to your opinions in this case?

10:35:21 A. Yes, it is.

MR. DICKENS: Permission to publish, your Honor.

THE COURT: Very well.

Q. BY MR. DICKENS: If you can turn your attention, Doctor, to page 70 of this Monograph. It's on the screen

10:35:35 as well.

A. Okay, yes.

Q. I'm going to first turn your attention to the overall conclusion of IARC. What is their overall conclusion?

10:35:47 A. Glyphosate is probably carcinogenic to humans.

Q. And is that supportive of your opinions that you reached independently?

A. Yes. It -- it solidified the opinion I reached.

Q. And did you try to take or make a determination as to how Roundup can actually cause cancer in human patients?

A. It's impossible to really have a conclusive evidence how a particular -- I mean, it's always good theories, and we could talk about this for the next five months, and at the end of the day, there are many situations by which we do not know a hundred percent how a particular compound or a particular carcinogen causes cancer. We don't know that hundred percent.

We actually use drugs that treat cancer we may not know the mechanism of action of how they work, but we know that they actually work.

To this day there's lots of conflicting opinions how does tobacco cause cancer. We know it does. No one's going to say, well, it doesn't cause lung cancer, but not every lung cancer patient has smoked and not every smoker got lung cancer.

So we don't know always the mechanism of action. I think, you know, when you look at the literature, you see some plausible theories, but we will find out in the next several years more theories as to how Roundup causes

non-Hodgkin lymphoma.

Some of the theories involve oxidative stress. Oxidative stress, basically free radicals. Every cell could have free radicals and a way to protect from the
10:37:22 free radicals.

So when you take some pills like antioxidants, these are to prevent free radicals. And usually when you purchase these, people tell you, well, because they protect you against damage to the cells and may be
10:37:35 helpful against cancer and so forth.

The reality is there's a balance in every cell between free radicals and what protects the cell against free radicals, and if that balance is actually henched toward the free radicals versus the others, then you have
10:37:49 an imbalance.

So there's some theory that glyphosates, Roundup, could actually affect that balance, tips the balance towards more free radicals or oxidative stress.

But I don't believe we actually know hundred
10:38:02 percent the mechanism of action, and I think that's okay. That's a limitation of sometimes what we have. We have plausible theories, and I think, again, as an oncologist who's treated patients for 20 years, I have used medications without knowing hundred percent how they
10:38:19 actually work, but I knew they did from clinical trials.

Q. Is oxidative stress at all related to non-Hodgkin's lymphoma?

A. Yes. It actually -- several papers that looked at in non-Hodgkin lymphoma patients, there is evidence of
10:38:36 oxidative stress. So when you're able to measure the oxidative stress, you will see that there is more oxidative stress in non-Hodgkin lymphoma patients.

But all I'm saying is the mechanism of action of a particular compound and how it induces the development
10:38:53 of cancer may not always be answered. It's not always an easy thing to do.

You have plausible theories that may allow you to have an educated guess, an educated conclusion how this happens, but it may not be 100 percent true.

10:39:09 Q. And IARC actually looked oxidative stress. And on your screen you can see. What was their findings with respect to glyphosate formulations and oxidative stress?

A. There is strong evidence that glyphosate, glyphosate-based formulations and aminomethyl phosphonic
10:39:28 acids can act to induce oxidative stress based on studies in experimental animals and in humans *in vitro*.

Q. And as an expert, do you agree with that statement?

A. I do agree with this statement. The only thing
10:39:38 I said is I don't know if this is the only way. And

again, there may be different mechanisms and so forth. And I don't believe -- I strongly do not believe that we need to understand how a particular compound causes cancer in order for us to classify something as cancer. We knew way before how tobacco interacts with cell lines that tobacco causes cancer.

10:39:53

You can tell I'm getting passionate.

Q. Doctor, in looking at your overall review of the evidence, and you know, obviously we're talking humans, is there any particular epidemiological studies related to glyphosate or glyphosate formulations and non-Hodgkin's lymphoma? Did you rely on some more than others?

10:40:11

A. There were -- there were -- a lot of these studies are cited, as you know, in this Monograph. There were epidemiologic studies in humans that looked at the association of glyphosate and non-Hodgkin lymphoma. Several of them, I looked at all -- I looked -- like I said, at the positive and the negative studies. I don't think we need to be biased and only just look at things that we like to see.

10:40:23

10:40:38

I think you have to look at the positives and the negatives and then form an educated opinion as to what really makes sense from a patient perspective. We're ultimately looking at patients.

10:40:50

And frankly, a lot of these studies -- and you're going to hear a lot about odds ratios and P values and all of these things, but how would anyone feel if you are talking to a physician and the physician said you know what, the P value in the study of this thing that you were telling me about is not significant. I don't -- I'm not going -- I'm going to dismiss this because the P value is not significant.

Not every single thing that is clinically significant has to be statistically significant. The statistics are numbers. These are numbers. Somebody many years ago said in order for us to believe that statistical significance is appropriate, the P value, it's random. It has to be less than 0.05. So if it's less than 0.06, then it's not -- it just doesn't work like this when you're talking to patients.

So the American Statistical Association actually has a statement, and that statement says: Not every single thing that is clinically significant has to have a P value less than 0.05. And vice versa. Not everything, single thing that is statistically significant may have any meaning to the clinic. It may have no impact to clinic. And I have examples of both.

But if the folks who are the statistics, the American Statistical Association comes out and says, you

know what, not every single thing has to be about the P value, we have to take things in clinical context, how what we see affects patients. Because ultimately we are clinicians. We're treating patients; we're not treating Excel spreadsheets.

10:42:31

Q. And in looking at those studies, then, are you looking at things such as dose response or, you know, how big of a risk it is, is it doubling or more?

A. Yes. You look at that, and there are several studies that I looked at that doubled the risk of developing non-Hodgkin lymphoma.

10:42:45

Q. And what were those studies that you reviewed and said these are actually showing a fairly large risk?

A. There's a study published by McDuffie and colleagues in 2001. There's another one in 2003 by De Roos and colleagues. There's another one by Eriksson and colleagues that also published in 2008. All of these showed doubling the risk.

10:43:01

And there are some others that didn't show doubling necessarily, but they still showed there's an actual risk. It may not have been doubled, but again, metaanalysis showed, you know, doubling and a half of the risk.

10:43:19

And you look at the trend. You look at, you know, what is the actual trend that you are seeing. At

10:43:31

the end of the day, it may not always be statistically significant, but the trends don't lie. Because again, all of these P values is a matter of what? Is a matter of numbers. Is a matter of number of patients.

10:43:47 So if I'm able to find something that is statistically significant with a low number of cases, that is very meaningful; right?

Q. Very meaningful to you as a clinician actually treating patients?

10:44:00 A. Absolutely. If it didn't take me thousands of patients to find something statistically significant and I was able to find something statistically significant with 20 or 30 cases, do I dismiss that? No. In fact, the power of this is significantly high because I didn't

10:44:16 need large numbers to show statistical significance.

Q. Rather than going to the actual studies, and we've already seen those and talked a lot about those, I just want to highlight what you had mentioned. You mentioned the De Roos of 2003; is that correct?

10:44:29 A. Yes.

Q. And what did that show with respect to the risk estimate?

A. So you will see that it says 2.1. So it doubles the risk. And this study adjusted for other pesticides

10:44:45 exposure as well as other factors.

Q. And that's one of the studies that you specifically said that you relied on maybe more than others because of that doubling the risk; is that right?

A. Yes. Again, I looked at all of the studies, but you know, anything -- it will catch your attention when you see these higher numbers.

10:44:58

You don't -- in my view as a clinician, I don't think you need to see all of these high numbers all of the time. To me, it's -- you know, when you're dealing with human life, when you're dealing with patients with cancer, I don't need to see triple or quadruple the risk for me to catch my attention. Any type of risk is important. Because we're all at the end, we're all current or future patients, at the end of the day.

10:45:12

10:45:26

So but, you know, doubling the risk obviously catches my attention.

Q. And you mentioned McDuffie as well?

A. Yes, I did.

Q. It says something here. It looks like greater than two days. What does that mean?

10:45:34

A. It just -- this study looked specifically at patients who were exposed -- unexposed, as you see, or exposed less than two days or more than two days. And if you're exposed more two days, you also have double the risk of developing non-Hodgkin lymphoma.

10:45:51

Q. And the last one I believe you mentioned was Eriksson; is that correct?

A. Yes.

Q. Let's go to Eriksson. Here's the chart from IARC with respect to Eriksson. Is this the Eriksson study you're referring to?

A. Yes, it is.

Q. And I do want to direct your attention -- I put a random highlight on there. But why don't we turn your attention down to the bottom the chart.

Do you see that, Doctor?

A. I do.

Q. It says T-cell lymphoma; correct?

A. It does.

Q. What's the risk estimate there for T-cell lymphoma?

A. It says 2.29.

Q. But to be fair, that's not statistically significant; correct?

A. It's not.

Q. What does it mean by unspecified NHL in Eriksson?

A. You know, this -- and again, I will always commend authors for trying to subclassify the type of lymphoma. As you see here, these authors, to their

credit, they went ahead and they said let's take a look at the subtypes of lymphomas at the time that they published and see if we see any particular trend and so forth.

10:47:12 And look at this. It says unspecified non-Hodgkin lymphoma. It just tells you that you can't -- you can't make that diagnosis accurately all the time. And that's exactly why you cannot have an epidemiologic study for every single subtype of

10:47:26 non-Hodgkin's lymphoma. It's just simply impractical, not doable. It's never going to happen.

And so for the unspecified, which some of them could be T-cell, some of them could be B-cell, the risk is five times, five times, 5.63. And again, I don't --

10:47:44 as I told you before, I don't necessarily need to see the subclassification. This is not something I necessarily need to see. All what this tells me is the challenges in making the diagnosis. It actually illustrates that very nicely.

10:47:59 Q. Okay. And does Eriksson actually show a dose response, the more you use it, the likelier you develop cancer?

A. It does. If you please highlight "more than ten days per year use," you'll see that these authors looked

10:48:13 at less than ten days per year and more than days, and --

yeah, and more than -- more than -- no. The one on top. It's more than ten days.

Q. It's -- that's the next one.

A. Yeah. So it's more than ten days. It says 2.36, so more than double the risk.

Q. I'm learning as I go here, Doctor.

A. I told you anybody can be a lawyer.

Q. You're right about that. You sound like my wife.

I do want to direct your attention down here. It says, "NHL, 1 to 10 years and greater than 10 years." I just want you to remember this. We're going to come back to this, Doctor, with respect to Eriksson. Okay?

A. Sure.

Q. If I don't get there, you remind me.

How many of these actual studies studied mycosis fungoides specifically?

A. To my knowledge, none of these studies looked specifically at cutaneous T-cell lymphoma, for the many reasons that were decided and listed.

Q. And for these many reasons, you still feel like you can say to a reasonable degree of medical certainty that Roundup and Ranger Pro can cause cancer?

A. Absolutely. Non-Hodgkin's lymphoma.

Q. Okay. We talked generally about your opinions.

I want to talk specifically with respect to Mr. Johnson.

A. Sure.

Q. You said you reviewed his entire medical chart.

A. I did.

10:49:36 Q. And you also personally examined him.

A. I did.

Q. Okay. With respect to Mr. Johnson specifically, did you take into consideration how much exposure he had prior to his diagnosis?

10:49:58 A. I did, yes. I was able to get that from him as well as from reading the charts. It's not always very easy to discern the charts, as I mentioned, in terms of dates, but to the extent I was able, I did.

Q. And it's my understanding you also came -- 10:50:16 prepared a demonstrative with respect to Mr. Johnson and his history.

A. Yeah. I mean, there are a lot of dates, lots of events. Again, I reviewed thousands of pages, but I just wanted to list, I guess, some -- just a legal bit of -- 10:50:33 you know, some particular dates that may be relevant.

MR. DICKENS: I jumped the gun, your Honor. Permission to publish Plaintiff's Exhibit 1039?

MR. LOMBARDI: And I had no objection, your Honor.

10:50:43 THE COURT: All right. Very good. But perhaps,

Mr. Dickens, before we get further into this, we should take the morning recess.

MR. DICKENS: That would be fine. Thank you, your Honor.

10:50:55 THE COURT: Okay. We'll be in recess, Ladies and Gentlemen, for 15 minutes. So we'll resume again at 11:05 on the wall clock. Please remember do not discuss the case.

(Recess.)

11:06:21 THE COURT: Welcome back, Ladies and Gentlemen.

We're still missing one juror. Dr. Nabhan may return to the witness stand.

MR. DICKENS: Mr. Johnson's in the restroom. He has to eat some food for medical reasons, so he'll be a 11:07:01 few minutes late, but we can proceed without him.

THE COURT: All right. Welcome back, Ladies and Gentlemen. Dr. Nabhan remains under oath, and, Mr. Dickens, when you're ready, you may proceed.

Q. BY MR. DICKENS: Welcome back, Doctor. Before 11:07:11 we took our break, we were discussing the demonstrative that you helped put together, and that's Plaintiff's Exhibit 1039.

MR. DICKENS: If I may publish again, your Honor?

11:07:23 THE COURT: Yes.

Q. BY MR. DICKENS: Can you just explain the process in putting this together and what this actually represents?

A. You know, as I told you, there are thousands of 11:07:37 medical records and pages that I looked at, but to the extent possible, I just wanted to jot down a little bit of -- a few dates that may be significant for Mr. Johnson's particular case.

Again, this is not inclusive of everything, but 11:07:56 I tried to be as abbreviated as possible. So you will see some dates that are of significance, where he started his employment -- do you want me to go through it or will you --

Q. Yeah, I'll ask you specifically. The first 11:08:10 entry is June 11, 2012; is that right?

A. Yes, which is when he got the full-time job as an integrated pest manager at the school district, and, you know, looking at the records, as well as talking to him in person, he would tell me what he did workwise in 11:08:32 terms of exposure and spraying.

Q. And now are you aware of whether or not Mr. Johnson had any exposure to Roundup or Ranger Pro prior to June 11, 2012?

A. I'm not aware that he did. I have not been able 11:08:47 to see anything in the records that he was exposed to

Roundup prior to that date.

Q. And did you consider the amount of exposure Mr. Johnson had to Roundup and Ranger Pro in reaching your decision as to whether or not it was a substantial contributing factor to his cancer?

11:09:00

A. Yes, of course I did.

Q. And how did you go about doing that?

A. I'm not a toxicologist. Again, as you know, I'm a physician, clinician that has treated patients for years, so, you know, just the simple math of asking a patient, "Tell me what you do when you mix and how do you do it?" And, you know, he told me that he would -- he -- he would spray in the morning, usually during the summer months, June, July and August. And he would spend several hours in the morning, and he told me specifically he would to that, you know, before kids come in and so forth.

11:09:15

11:09:35

And it's five locations for five schools in the school district, and it's about several hours, two to five hours every single day, about four days a week, in general. And sometimes he told me he would do the weekends. It wasn't very detailed as why sometimes weekends, why not, but he would just say, again, four days a week, every week for several months during the summer. And he did that -- again, if you look here, I --

11:09:50

11:10:08

he was diagnosed sometime in the summer of 2014, so he did that for two summers in a row.

Q. Did you reach an opinion as to whether or not the amount of exposure he had was sufficient in order to
11:10:22 cause his non-Hodgkin's lymphoma?

A. Yes, I did. And again, I mean, you know, you have to correlate things, because just one time or twice exposure, minimal exposure may not be that significant, but at least from reviewing the literature -- and some of
11:10:39 this is common sense. Again, common sense. If you smoke two cigarettes a day, you're unlikely to get a particular cancer, but if you keep smoking, smoking, smoking, you're more likely than not to increase the risk of developing a particular cancer. So, yes, there were studies that
11:10:55 suggested that the more exposure you have to Roundup, the more likely you are going to develop non-Hodgkin's lymphoma, and I think we reviewed these studies before the break.

Q. Did you consider whether or not -- or what he
11:11:07 was wearing, whether or not he was covered up when he was doing the spraying?

A. He did tell me that he would wear a Tyvek suit most of the time. He said he followed the instructions in terms of how he mixes the compound with water, about
11:11:28 50 gallons, and there was a -- he described a motor pump

connected to a hose, and so, yes, I took that into consideration.

He also mentioned every time he mixes, no matter what, he gets a lot of drifts into his face. I mean, the -- despite everything that he tried to take precautions, he did get a large risk and this exposure that hits his skin and his face, and had a couple of acute spilling events that had a lot of exposure to his skin allover that he described to me, and they're documented in the medical records.

Q. Okay. The next entry you have there is for late May, early June 2014. What happened at that point in time?

A. Looks to me that -- again, from reviewing the records, that he started developing a rash, and, again, we all know that you probably -- you're not going to run to the doctor the first time you get the rash, right? I mean, just common sense. You just try to think if things will just go away for a couple of days, maybe a couple of weeks, and then if things get worse or just don't work, you just call the doctor or the nurse and get an opinion.

Looks like sometime in -- sometimes in May or June where he developed a rash, because when he went to see one of his physicians in late July 2014, he describes that he started having a rash about a month before, so I

just believed that this is when he started getting the rash. And then when I talked to Mr. Johnson in person, again, I think Mr. Johnson and myself, we both agree that he does forgot a lot of dates, and he gracefully told me
11:13:08 that he does. But sometime in May where he started having these rashes.

Q. Okay. You mentioned he may not be the best historian. Were there other possible dates as to when a rash may have developed in the records that you reviewed?

11:13:23 A. He had -- Mr. Johnson had -- there was one -- one note -- a couple notes, actually, where Mr. Johnson was -- hit a nest wasp and had, I think, a lot of stung bees, and he went to the doctor at the time, if I recall, and he may have had a rash from bees at the time, and
11:13:51 because of the -- that -- I was able to see that sometime in the record, that nest wasp that he fell into.

Q. Next entry says that he went initially for -- June 2014. Do you recall what kind of treatment he received in the June 2014 visit?

11:14:07 A. Topical therapy. Maybe -- I mean, I'll have to go back and look exactly, but I believe he had just some antibiotics, Keflex, steroid cream, which is pretty typical. I mean, you don't want to really jump into biopsying every rash right away, but when things get
11:14:23 worse, you end up doing a biopsy.

Q. Okay. And then he went back to a doctor the next month; is that right?

A. Yes.

Q. And you reviewed those records in preparation of your opinion here today?

A. Yes.

Q. Okay. If I can have you turn to Exhibit 25 in your binder, Doctor, specifically the first four pages of Exhibit 25. Can you identify what these records are?

A. The first four pages?

Q. That's correct.

A. These are a note from -- dated July 23rd, 2014, from Dr. Cary Johnson.

Q. And are -- is this the record that you're referring to in your chart of July 23rd, 2014?

A. Yes.

MR. DICKENS: Permission to publish Exhibit 25?

THE COURT: Any objection?

MR. LOMBARDI: No objection, as long as we can publish medical records as well.

THE COURT: All right, with that understanding.

MR. DICKENS: That's fine, your Honor.

THE COURT: You may proceed.

Q. BY MR. DICKENS: I want to direct your attention now, Doctor, to, first of all, the very bottom of the

second page.

A. I'm sorry, which page is this?

Q. Sorry. I believe it's the third -- no. It is the second page. On the very bottom there's an injury date.

Do you see that?

A. Yes.

Q. And what is the injury date?

MR. LOMBARDI: I'm sorry. I'm just confused.

11:16:01 MR. DICKENS: I'm sorry.

MR. LOMBARDI: Can you read the Bates Number?

MR. DICKENS: I can. It's DJ 01-5.

MR. LOMBARDI: Okay. Thank you.

Q. BY MR. DICKENS: The little tiny numbers on the

11:16:11 bottom, Doctor.

A. Yes, I see that.

Q. Okay. And there's an injury date there; correct?

A. Yes, there is.

11:16:16 Q. And what's that injury date?

A. April 30th, 2014.

Q. And now if you can turn to the next page with Bates Number 01-6.

A. Yes.

11:16:30 Q. I'm going to highlight a part there for you,

Doctor. It states he used pesticide Ranger Pro.

Do you see that?

A. I do.

Q. Okay. Can you read starting on DOI? Can you read that for me?

A. You want to read this highlighted area?

Q. That's correct.

A. "He has used the pesticide Ranger Pro for two years at work. On date of incident, small amount of the pesticide got into left side of his face. He did not develop any skin irritation at that time. Patient states that he developed skin rash to his whole body, sparing the face, about one month after the said incident. He is wondering about the relationship between the incident and his skin rash."

Q. Okay. And is it your understanding, based on your review of all the materials in this case, the date of incident they're referring to is April 30, 2014?

A. Looks like.

Q. And now if we can turn back and publish Plaintiff's Exhibit 1039, which is your chronology again.

A. Okay.

Q. You have here late May, early June 2014. Is that based on the one month from the date of incident?

A. Yes, it is.

Q. And that was a record close in time to his doctor visits at one point in time; correct?

A. Yes. He saw the doctor in July, as you can see.

Q. Doctor, if we can put this aside. I want to talk about how you went about reaching your opinion that Roundup was a substantial contributing factor for Mr. Johnson, and we actually have a demonstrative with respect to this.

MR. DICKENS: If I can publish Plaintiff's Exhibit 1031, your Honor.

THE COURT: Yes. Any objection?

MR. LOMBARDI: No objection, your Honor.

THE COURT: Very well. You may proceed.

MR. DICKENS: And may I ask Dr. Nabhan to come down into the well, your Honor?

THE COURT: Very well.

Q. BY MR. DICKENS: So, Doctor, you discussed just generally what a differential diagnosis is; correct?

A. Yes.

Q. And can you explain that to us again?

A. Really, in any particular case, you can never be 100 percent that this is the one sole reason that is contributing or the most substantial factor in developing or in making the cancer worse. So we -- I would oftentimes have to throw everything that is possible or

plausible and then take a look at what of these factors may apply to a particular patient to a particular condition. And almost I would say it's process of elimination or process of exclusion.

11:19:21 Q. And is that something that you did in evaluating Mr. Johnson's case and whether or not it caused his cancer?

A. Yes. And I think it should be done in every case.

11:19:30 Q. Okay. So what I want to do is I'm going to hand you a marker, and I want to go through some of the risk factors and causes that you considered for Mr. Johnson, so --

THE COURT: Excuse me, Mr. Dickens, do you mind 11:19:43 pushing your exhibit a little further back?

MR. DICKENS: No problem, your Honor.

THE COURT: Okay. Very good. Thank you.

THE WITNESS: You do realize the handwriting of physicians is very limiting, so I'm now under a lot of 11:19:57 pressure.

Q. BY MR. DICKENS: Do it nice and neat.

A. I will try my best.

Q. So what kind of risk factors did you consider?

A. So, you know, I mean, the first -- the first 11:20:04 thing when a -- when a patient comes in, common sense;

right? I mean, you look at the age and race.

So I look at the age, and generally speaking, just in general, in any textbook, when you look at non-Hodgkin's lymphoma, the median age of diagnosis of
11:20:23 patients with non-Hodgkin's lymphoma is anywhere between 62 to 70, but in T-cell lymphoma, in cutaneous T-cell lymphoma, the median age is between 55 to 60, so at least for me, as a oncologist, when you meet a patient that is not within the age bracket that most patients with
11:20:47 cutaneous T-cell lymphoma or non-Hodgkin's lymphoma develop, it raises a red flag.

I mean, you know, if you -- if a woman at the age of 35 walks in with breast cancer, God forbid, a physician would have a red flag. I mean, why is breast
11:21:04 cancer developing in the age of 35? You look at genetic factors. You look at other things that may cause it, and sometimes you may not have the cause.

So for me it was a red flag. Let me just put this here (indicating). So red flag, and what I mean by
11:21:20 that is -- what I mean by this is just it warrants further investigation, right?

I mean, if somebody has a heart attack where they have all the risk factors in the world and the same age group, you may not really think about it twice, but
11:21:39 if somebody who is an athlete and exercises, doesn't

smoke and have a heart attack at the age of 38, you say, "Well, let me think. Is there other reasons?" So that's really for me, as an oncologist, what I think.

Q. Okay. We've heard some here with respect to idiopathic cancer. What does idiopathic mean?

A. Idiopathic is a word that physicians try to use so they don't appear dumb, but basically, it is like to say, "We really don't know, so it's idiopathic." So it's, like, "Wow. I have an idiopathic" -- simply we don't know.

Q. And when you say "a red flag," does that, you know, mean I'm flagging this, because maybe it isn't idiopathic? Maybe there's something there?

A. Yeah, maybe there is something in this. Again, I contrasted the example with breast cancer. We don't know all the causes, but when you have a very young woman who gets diagnosed with breast cancer, you think, you know, "This just doesn't add up. Let me investigate that further."

Q. Okay. And so were you able to rule out age as a risk factor or cause for Mr. Johnson?

A. I mean, you will see patients with younger age. All I'm saying is -- all this age told me is I can't say that just because of the aging process -- I mean, we all age, and the aging process by itself could cause some

disruption and so forth. I can't blame age on this case. That's really all that tells me.

Q. Okay. So if you can't blame age in this particular case for Mr. Johnson, you can go ahead and

11:23:03 put -- your handwriting's wonderful, but --

A. Or the marker's bad.

Q. We'll blame it on the marker, Doctor. If we can go -- just write a little bigger, for those in the back, just so they can see it.

11:23:17 A. Sure.

Q. Age isn't. What else did you consider?

A. I think the second thing is race, and I think race is important, because there are certain cancers that develop in particular ethnic -- ethnicities, in

11:23:30 particular racial groups than others. I can give you examples. There's a form of leukemia called acute promyelocytic leukemia or APL. It's more common in Hispanic patients. There is -- this type of disease is more common in African American patients. There are

11:23:48 certain cancers more common in Asians. Others more common in Caucasians. We don't always know why. We don't know how much of this is actually a surrogate for other things versus the genetic makeup of a particular race. We really don't know yet. Sometimes we do.

11:24:04 Sometimes we do not.

But this particular disease, or what we call CTCL or MF non-Hodgkin's lymphoma, is more common in African American. So it is not surprising to see -- it doesn't mean you don't see it in Caucasians, by the way. It just means it happens more commonly in this particular racial group.

11:24:18

I've taken care of many patients who are Caucasians who have this disease, but you're more likely to see this disease in African Americans.

11:24:32

Q. And I just want to point out, as I believe in opening statements, my co-counsel made an accidental misstatement with respect to mycosis fungoides, but I just want to be clear because of that. African Americans are at an increased risk; is that right?

11:24:42

A. They are at an increased risk of this disease.

Q. Other than age and race, is there anything else that you considered in rendering an opinion as to whether Mr. Johnson's --

A. Yeah, so you look at -- you look at

11:25:02

immunosuppressive drugs, so patients who are on immunosuppressive therapies. So just to -- just to explain -- to explain: If you have somebody who gets an organ transplantation, so liver transplant or kidney transplant, they're usually put on immunosuppressant

11:25:22

therapy so they don't reject the organ that got

transplanted into them. This immunosuppressant therapies suppresses the immune system, so patients could have increased risk of developing lymphoma in general, specifically non-Hodgkin's lymphoma, if they are on immunosuppressive therapy.

11:25:36

Q. Was there any evidence that Mr. Johnson was on immunosuppressive therapy prior to his diagnosis?

A. He was not.

Q. Anything else you considered?

11:25:47

A. You look at autoimmune diseases, and these are patients who have lupus, something called Sjögren syndrome, if you've heard about that, rheumatoid arthritis. These are diseases that actually common. They happen. And what they do, they occur because the immune system of the patient is not as strong. So we call it autoimmune. It's not something that is because of drugs that you receive or -- or therapies. It's just simply a disease that affects the immune system.

11:26:15

And because the immune system is affected, there are increased risks of developing non-Hodgkin's lymphoma. And Mr. Johnson does not have any autoimmune diseases.

11:26:33

Q. Okay. Anymore things that you considered here?

A. Obviously here we look at the occupation.

Q. And what was Mr. Johnson's occupation?

A. Insecticides/pest manager. And he was spraying,

11:26:51

which we just talked about excessively, with Roundup. So he had an occupation or exposure to an agent that has been determined by the International Agency of Research on Cancer as a human carcinogen. So there's nobody that could logically exclude this, and you have to put a checkmark as a possible substantial contributing factor.

Q. Now, Doctor, we said "occupation." You're not saying his actual job, though?

A. No. It's what you do with the job. As we said -- I think I gave you the example of coffee. It's not the coffee, it's the temperature. If you boil the coffee to over 150 degrees and you drink it, it's not the coffee, it's the actual temperature.

So you have to think beyond what the occupation is. It's what's the surrogate? What are you doing with this occupation?

As you know, I offer examples. Discussed night shift working. So patients who have night shift, they are at increased risk. Now, why is that? Let's think about it. Does this mean that everybody who works at night has an issue? No. It's just possible it's diet related when you are working at night. Maybe you are not exercising when you're working at night. Maybe that your circadian rhythm is completely out of -- out of context.

And, in fact, this type of evidence is making

employers figure out ways of: What can we do for night shift workers when we need? How can we make things better, in terms of exercise, switching shifts and so forth? It's not really their thing. It's -- you have to look beyond. We can't -- we can't be short-sided.

Q. Is there a difference here -- and you have race and Roundup. Is there a difference between risk factor and cause?

A. I mean, risk factor puts you at an increased risk of developing a particular disease. But if you don't get exposed -- I mean, in other words, could Mr. Johnson have had this disease without being exposed to Roundup? We don't know the answer to that. I mean, it could have developed in the next 10 years or 15 years. Nobody has a crystal ball.

But you can be very certain that if he had not been exposed, he would have not had it today.

Q. Okay. So you say "very ceratin." Is it more likely than not Mr. Johnson would not have cancer had he not been exposed to Roundup?

A. Today, yes.

Q. With respect to his occupation, did you look at his full occupational history from, you know, his adult life?

A. To the extent he was able to remember and told

me. He did work a little bit in the school where I think he cleaned the school and bathrooms and so forth. He worked in a winery at some point. That's really what I can recall. And he took several years off to take care of his grandmother. I recall that.

11:29:39

Q. Do you -- you mentioned Roundup here. Did you take into consideration possible other occupational exposures, other chemicals or pesticides or anything else?

11:29:49

A. But he was not exposed to any other pesticides. I think he -- what we know is with certain occupations, that -- farmers, for example, and agricultural workers are at increased risk. Nobody -- I mean, everybody knows that. But, again, it's not the fact that you're farming. It's what you do on the farm is really what matters.

11:30:07

Q. So you did consider other occupational exposures?

A. Yes. And he doesn't have any.

Q. All right. So why don't we write "other occupational exposures" underneath.

11:30:18

A. (Witness complies.)

Q. Now, you said he doesn't have any. Were there any other type of herbicides that he used, in addition to Roundup, during his job at the school?

11:30:36

A. To my knowledge, none.

Q. What else do we have on your differential diagnosis?

A. Well, I mean, I think, obviously, you know, from sun exposure standpoint, I don't believe that sun exposure has a role in developing this type of lymphoma.

11:30:49

In fact, we treat this type of lymphoma with UV -- with light therapy, with forms of radiation therapy. Mr. Johnson had several courses of radiation therapy. So it's not the type of -- it's not the other skin cancers. Not the melanomas.

11:31:07

Again, this is not skin cancer. This is -- it's in the skin, but it's lymphoma. It's like the lymphoma that we talked about earlier. Extranodal could affect any organ in the body.

11:31:20

So it's not the melanomas or the squamous cell or the basal cell that could occur from the sun. This is not sun exposure.

So I can put "sun" here, and I can actually cross it.

11:31:32

Q. You mentioned squamous cell carcinoma. Isn't it true Mr. Johnson at one point had squamous cell carcinoma?

A. He did have squamous cell carcinoma. I believe in the right knee. And he had surgery for this. These

11:31:45

are completely two separate entities. And I don't

believe the squamous cell carcinoma is related to Roundup.

Q. Can viruses cause non-Hodgkin's lymphoma?

A. Usually you put viruses, in general, for non-Hodgkin's lymphoma. There are certain subtypes of non-Hodgkin's lymphoma that are affected or could be caused by viruses.

HIV positive patients are at increased risk of developing non-Hodgkin's lymphoma. There are some forms of non-Hodgkin's lymphomas that could occur because of exposures to certain viruses.

There's the human herpesvirus 8, or what we call HHV8, and so forth. There's one bacteria, Helicobacter pylori. I don't know if you know about this. But it's H. Pylori. It's usually in the stomach. People usually treat it with antibiotics. This is well known to be causing a disease of lymphoma called M-A-L-T or MALToma. It's a B-cell lymphoma. It's associated with headache or back -- MALToma, yeah.

And, you know, there's a form of virus called HTLV-1. This happens more in the Asians and folks in the Caribbean. It is implicated with T-cell lymphoma.

But, again, Mr. Johnson actually was tested for all of these viruses. Some of them I wouldn't have tested myself, because there's clearly -- this is not

adult T-cell leukemia. I wouldn't have tested for HTLV, for example. But he was tested for that. And all of the viruses came back negative.

Q. Anything else you considered?

11:33:26 A. No. I mean, I think -- you know, I don't recall there's -- to my knowledge, there is no evidence that alcohol or tobacco are associated with this type of lymphoma.

Now, I will never endorse tobacco. But to my 11:33:42 knowledge, tobacco does not actually cause this particular type of lymphoma. And Mr. Johnson is/was never a heavy smoker. And alcohol is not implicated also with this type of disease.

So I usually don't put them under non-Hodgkin's 11:33:58 lymphoma, frankly, because, again, as a lymphoma specialist, I don't actually believe that they are implicated at all. So I didn't even list them.

Q. Fair enough.

So after you did your whole differential 11:34:08 diagnosis, you put everything in and ruled everything out, what were you left with as possible risk factors or causes?

A. Race and Roundup.

Q. And so based on your review, you can say that -- 11:34:22 can you say that Roundup was the most substantial

contributing factor for Mr. Johnson's --

A. Yes, I can.

Q. Thank you, Doctor. You can go back and sit.

Now, Doctor, I do want to address one more thing. And we'll bring up your -- your chart again.

11:34:48

Mr. Johnson's first exposure was in June 2012; correct?

A. Yes.

Q. And he was actually -- had his first rash in late May or early June 2014; correct?

11:35:03

A. Correct.

Q. Was that rash in June 2014, in your opinion, cancer?

A. Yes.

11:35:15

Q. So, Doctor, it was approximately two years from the time of his exposure until he got cancer. How can it happen that quickly?

A. Well, it can. I mean, it can. I think what you're probably referring to is something called, in medicine or epidemiology, latency period.

11:35:28

And, you know, it's basically you're trying to say, well, from the time you get exposed to an offending hazard or an offending agent to the time of developing a particular cancer.

11:35:45

There is no agreed upon latency period with

these types of exposures or anything in cancer. So it's not a binary -- and what I mean by binary, it's not like you have to be exposed five years in order for me to even be convinced. Or ten years or one year. There's no such
11:36:06 a thing. There's no such a thing when you are dealing with patients, when you are in clinic, and when you are talking to partners.

Latency periods could be short and could be long. So there's no such a thing. And we can keep
11:36:25 talking about this for the next two years. There's no such a thing.

In fact, there are so many examples of particular cancers that occur very shortly after an offending agent. They may not be Roundup or glyphosate,
11:36:42 but, again, it's analogous. It's an example; right? You can't always have the same exact example.

Q. Are those the examples --

A. I'll give you an example, if it's okay.

Q. That's what I was going to ask, Doctor.

11:36:53 A. There's a form -- there's a disease called PTLD, which is -- which stands for post-transplant lymphoproliferative disorder. Basically, think of it: A patient gets a transplant -- gets a liver transplant or kidney transplant. We just talked about that. Then they
11:37:12 are put on an immunosuppressant therapy. So that's an

offending thing that happened. This patient, before they received immunosuppressant therapy weren't on anything. They just got the transplant. And then the doctor says, "I'm going to prescribe these drugs so you don't have the organ rejected."

11:37:27

These patients could develop non-Hodgkin's lymphoma as early as one month after being exposed to this particular immunosuppressant therapy or as late as three years. And I have seen that, because, again, I actually had several clinical trials in this particular disease, PTLD. So you do see that.

11:37:42

There are patients who actually develop the lymphoma in a short period of time after being exposed to an offending hazard. Patients could develop leukemia several months after undergoing chemotherapy for something else.

11:37:57

So in non-Hodgkin's lymphoma, we give chemotherapy for some patients. And they could develop leukemia, which is a form of blood cancer, a month or two months, up to several years after, from being exposed to these chemotherapies or chemicals.

11:38:10

So, again, the examples are numerous. But at the end of the day, from a latency perspective, from the time you're exposed to something until the time you actually could develop the disease, there is never an

11:38:26

actual threshold that you have to meet and -- that's from a clinical perspective.

And as you know, the World Trade Center, after the terrorist attack, attempted to figure out how can they actually look at latency from the first responders and people who lived in that area who developed cancers after the terrorist attack because -- so they can compensate them and pay for the medical bills and so forth.

11:38:41

11:38:57

And they started looking at the different diseases that they are seeing for patients. And, basically, in their latest publication they said the latency period for these types of lymphomas is as early as 146 days.

11:39:09

So it does happen a short time or a long time. This is exactly what happens in clinical practice. As a clinician, you should never dismiss a complaint or a possibility just because you believe it has to be five years.

11:39:25

So if a patient comes in after four years, you say, "You know what, Mr. Johnson? I'm not going to listen to it. It's not five years yet. It's not related." This doesn't -- it's not how it works. It's not always this binary threshold that you need to fulfill.

11:39:40

Q. So is it fair to say that latency can vary by individual?

A. Yes, of course.

Q. If you can turn to Exhibit 820 in your binder. Do you have that there, Doctor?

A. I do.

Q. Can you identify what that document is?

A. This is the World Trade Center Health Program, which is actually the one I was just citing. It's a document that was written in October 2012 and updated in January 2015 and discusses minimum latency and types or categories of cancer.

MR. DICKENS: Permission to publish Plaintiff's Exhibit 820, your Honor.

THE COURT: Any objection?

MR. LOMBARDI: No objection, your Honor.

THE COURT: Very well.

Q. BY MR. DICKENS: And, once again, this is the 911 minimum latency and types or categories of cancer. That's the document you're referring to?

A. Yes, it is.

Q. Okay. And I'm going to draw your attention down to Number 3. It says, "Lymphoproliferative and hematopoietic cancers, including all types of leukemia and lymphoma."

Is it your understanding this includes non-Hodgkin's lymphoma?

A. Yes. I'll have to tell you, even if this document never existed, I don't care. It's what I see in clinical practice. You know, if anything, this document solidifies what you see in clinic.

So it's great, it's wonderful, that obviously it solidifies what I see. But even if they didn't say this, what I actually see in real life -- and in clinic practice, you see patients could have shorter exposure or longer exposure. But I like the fact that it at least confirms what we, as clinicians, see in clinic and in practice.

Q. Okay. So this wasn't the basis of your opinion for latency?

A. No --

Q. This just backed it up?

A. -- it was not.

Again, what you see in real life, and there are so many examples -- I cited just two. And there are tens of these examples that absolutely show time from offending hazard to development of disease or cancer could be short, could be long.

Q. I'm going to show you a slide that was used by defendants in their opening statement.

MR. DICKENS: Any objection, Counsel?

MR. LOMBARD: No objection.

MR. DICKENS: Permission to publish?

THE COURT: What are you publishing?

11:42:03 MR. DICKENS: Oh, I'm sorry. It's a slide used by Mr. Lombardi in his opening statement.

THE COURT: Okay. Very well.

Q. BY MR. DICKENS: This is another timeline for Mr. Johnson. And it was used by defendant in their

11:42:17 opening statement. And it has a start of Mr. Johnson's cancer according to plaintiff's experts. And that appears to be in the mid-2000s.

Do you see that, Doctor?

A. I see that. I have no idea where this came

11:42:30 from.

Q. Did you ever give that opinion?

A. Never ever.

Q. Are you aware of any experts in this case who has given that opinion who's actually looked at

11:42:41 Mr. Johnson and actually examined him and looked at his records?

A. I've reviewed many depositions and many documents. I am not aware of anyone that's stated that Mr. Johnson's cancer started in the mid-2000s.

11:42:55 Q. And what is your opinion, then, as to when his

cancer actually developed?

A. Yeah, I mean, I think -- I think it's -- I don't believe it would have developed without the significant exposure to Roundup that he had, as I just showed you.

11:43:11 Sometime in early 2014. Probably a couple years after he was exposed in April of 2014, when he started developing the rash. And then it took a couple months until he had a biopsy. And the diagnosis was confirmed sometime in August of 2014. That lag of several months, 11:43:32 from the rash until the diagnosis, is very typical of this disease.

Q. Okay. In your review of his full chart, did you see any studies or lab tests or any results that suggested he may have had cancer all the way back in the 11:43:44 mid-2000s?

A. So you can't detect this cancer with any lab test under the sun. This just doesn't exist. So I did not -- I did not see anything to suggest that this slide or this statement is accurate.

11:43:57 And I'm not sure how it is stated that it is according to the plaintiff's experts.

Q. I'm going to go back to Plaintiff's Exhibit 1039, which is your timeline that you created. There's a date for his actual diagnosis. When was 11:44:20 Mr. Johnson diagnosed with cancer?

A. August 2014.

Q. Okay. And he actually had a pathology report prior to August 26th; correct?

A. Yes.

11:44:33 Q. And based on that pathology, that diagnosed eper- -- I'll let you --

A. He'd had -- he's had cutaneous T-cell lymphoma, mycosis fungoides, I think.

Again, as I mentioned, it is not unusual to 11:44:47 struggle a little bit with the diagnosis. So you end up -- it's -- obviously it was very clear that this is a T-cell non-Hodgkin's lymphoma. They were just struggling with the subclassification. You saw the table as to how many types of T-cell lymphoma that we are dealing with. 11:45:04 So it's not unusual.

And, again, it illustrates one more time why it is impossible to do epidemiologic study for every single subtype. This is just another example that you just can't do it, when you're really struggling to make that 11:45:19 diagnosis, even after a biopsy.

But he had, basically, cutaneous T-cell lymphoma, diagnosed in August 2014.

Q. In fact, it's mentioned in his record that he had an unusual immunophenotype; correct?

11:45:34 A. Yeah. So immunophenotype, think of -- think of

the cell as a car and each car has a license plate; right?

So the immunophenotype is trying to look at these license plates, these numbers. That's really what it is. So all the cars may be blue, but -- and they may be Japanese made, but at the end of the day you differentiate them by their shape and by the license plate.

11:45:50

So immunophenotyping, you're trying to look at these cells and what type of proteins on the surface of the cells, so you can differentiate them from each other.

11:46:04

So in the beginning, when they looked at the pathology, at the biopsy, the immunophenotypes of the license plate did not look like this blue car that they thought it is. Looked like a little bit different. Looked like a red German car.

So then they said, "Okay. Well, let's do additional biopsies and so forth and additional testing." And that's where you saw on October, actually, had the T-cell gene rearrangement studies.

11:46:30

Some these T-cells have a receptor on the surface. Think of it as a protein or -- I usually tell my patients as a pimple on the surface of the cell. So what you try to do is you try to fish or clone for that particular receptor using -- I really hate using medical

11:46:45

terms. But using a technology using PCR.

And at the end of the day, you're able to see that these receptors are positive. So all that you are seeing are positive for these T-cells.

11:47:01 At the end of the day, this is cutaneous T-cell lymphoma. They struggled for a couple of months to be 100 percent sure, because they wanted to make sure they apply the right therapy. This is very typical, very classic in how you deal with the disease.

11:47:15 As I've said, it's a very uncomfortable situation for the patient. Because ultimately let's remind ourselves we're about taking care of patients. And as patients waiting and uncomfortable and they want to have a plan, and you're still saying, "You know what? 11:47:26 Let me send another test, and let me wait, and let me do this," Mr. Johnson would attest how uncomfortable that is, because he's the one who's having the symptoms, and he wants something to be done.

Q. With respect to Mr. Johnson and the timeline, 11:47:39 you have on there something that says, "Still spraying." What do you mean by that?

A. When I asked him, and when -- looking at the records, it appears that as he was going through this process, he was continuing to spray Roundup. I don't 11:47:54 belive he was told not to spray, to my knowledge.

Q. Okay. What significance does that have, if anything, to the progression over the course of his disease?

A. I don't think we know. You know, I mean, it's 11:48:07 hard to tell. Could it cause the disease to be worse? Maybe. Are we 100 percent sure? I don't know.

I mean, you know, as I told you, when a smoker comes in and has lung cancer, the doctors say, "Don't smoke," because they don't want to get the cancer to be 11:48:23 worse, or they don't want the cancer to interfere with treatment -- the smoking to interfere with treatment. They don't want another cancer to develop.

But we just really don't know what the impact of this. If anything, it just makes more sense not to 11:48:36 spray, if you really have concerns that this is really causing the problem.

MR. DICKENS: I'm going to -- if I can use the Elmo.

Q. And, Doctor, Plaintiff's Exhibit 332, which has 11:48:56 already been admitted into evidence, I'm going to show you.

MR. LOMBARDI: This is the one we talked about this morning. No objection, your Honor.

THE COURT: All right.

11:49:15 MR. LOMBARDI: Can you give me the number again?

MR. DICKENS: 332.

Q. Doctor, on this date -- and what's the date of this document? Can you see?

A. It says, "Tuesday, November 11, 2014, at 2:12 p.m."

11:49:33

Q. Okay. So at this point in time, Mr. Johnson has cancer; correct?

A. Yes. He was diagnosed in August.

Q. And you knew that based on your review of the medical records?

11:49:40

A. And the biopsy of the results.

Q. You mentioned some acute accidents or spills. It says, "A hose break on a large tank sprayer approximately nine months before."

11:49:55

Do you see that?

A. I do.

Q. And was that your understanding, based on your review of the records, as well as talking to Mr. Johnson?

A. Yeah. He did have two acute spilling episodes.

11:50:05

I couldn't really pinpoint exactly the date, but that's what it says.

Q. And it mentions that he was -- he became soaked on his skin, face, neck and head --

A. Right.

11:50:16

Q. -- with Ranger Pro.

A. Yes.

Q. What's the significance of him being soaked, you know, over his whole body?

A. Your -- I mean, your exposure is now magnified significantly. I mean, it's all over your skin. So, you know, there's no -- there's no protective layer between you and an offending hazard. So, I mean, the significance is very high, because now you're -- you know, the impact of how much you got exposed is substantially increased.

11:50:27

11:50:42

Q. Do you understand that that happened on more than one occasion for Mr. Johnson, prior to his diagnosis of cancer?

A. I saw it happened twice.

Q. And I think you mentioned before, were those his only exposure, those two incidents?

11:50:53

A. No. These were -- to my knowledge and to my recollection, these were the two acute high-level exposure. But he was obviously exposed constantly and chronically through his job. But these were, like, an aberration. These were just out of the norm of his job.

11:51:11

Q. Okay. It states: "His entire body is covered in this now and doctors are saying it's skin cancer."

A. It's not skin cancer. Obviously it's lymphoma. Again, this is -- tells you obviously the misnomer that

11:51:31

people just assume any cancer involving the skin is skin cancer. I mean, it's not unusual. I've seen that many times, it called skin cancer. It's obviously non-Hodgkin's lymphoma involving the skin.

11:51:43 Q. Okay. So even though it's on the skin, it's not skin cancer?

A. Yeah. I've said that, I think, 20 times.

Q. Yeah. I like to repeat things.

It says, "A large exposure." And states that, "Skin was always perfect until this happened."

Was that your understanding, based on your review of the medical records?

A. Yes.

Q. So prior to these incidents, his skin -- he

11:52:00 didn't have any history of rashes or eczema or anything along those lines?

A. It did not appear that he had any rashes prior to this incident.

Q. Okay. You're a treating doctor, and I don't

11:52:12 want you to tell me anything about Dr. Goldstein, and you probably don't even know who he is. But if somebody called you complaining of cancer on the skin after exposure to a Roundup formulation, what would you recommend for that patient?

11:52:26 A. Well, if I -- if I knew the data, I would

obviously say, "Immediately stop." And if I didn't know the data, I would say, "Immediately stop, and let me research the data"; right? I mean, again, these things are just common sense.

11:52:40 I'm not claiming that doctors will know every single data, and I think that's fine. But every patient would like their doctor to go the extra mile and just say, "Okay. Well, you know, I'm not aware that this actually could cause anything, but you know what? Let's 11:52:54 just err on the side of caution. Why don't you just stop using it. Let me research it, and I'll get back to you."

Again, we're dealing with human life. We're dealing with a patient. So you cannot err more on the side of caution than you should. So that's what I would 11:53:09 do.

And, you know, if I knew the data right away, I would say, "Well, you should stop. And this is why." But if I didn't know the data, I would say, "You should stop, because I'm not really sure if this is related or not, but let me get back to you. I know your job is important. I know you have cancer. I know you have bills to pay. And that's why you want to continue spraying, because you need to actually take care of yourself. But why don't you just give me just a couple 11:53:29 of days to investigate and figure this out."

Q. And that's what you say, to be fair, as a treating doctor; correct?

A. Yes.

Q. I want to go back to Plaintiff's Exhibit 1039, which is your timeline.

11:53:39

MR. DICKENS: Permission to publish, your Honor?

THE COURT: Yes. You may proceed.

Q. BY MR. DICKENS: We talked about his diagnosis of cancer. I want to talk a little bit about the treatment Mr. Johnson has received for his cancer. Can you tell us what type of treatment he's received?

11:54:05

A. Yeah. So it's a very challenging disease to treat. Think of the way you treat the disease is twofold: Number 1, you have to treat the actual cancer; right? You have to treat the disease. But the part that is very challenging is to treat the side effects of the cancer itself, the itching, the skin disfiguration, the -- you know, the fact that most people, when their entire skin is actually affected head to toe, they are going to have depression, anxiety. It might affect, actually, relationships with friends or intimate relationships with their spouses or significant others. These are things that you cannot undermine. And they're very important. So you always have to focus on these at the same time you treat the cancer.

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So -- and treating this cancer is -- is usually stepwise fashion. Oftentimes we start by using some form of radiotherapy, radiation therapy, because it turns out that the radiation therapy actually makes patients feel
11:55:15 better faster. Because you really want to try to relieve the itching and the discomfort and so forth.

So he actually had light therapy. We call it light therapy. It's a form of radiation therapy. And then you add to the radiation therapy sometimes oral
11:55:31 chemotherapy, if you can, as opposed to IV, because it's just more convenient.

So after that, he was added -- you want me to go through the treatment or just stop?

Q. So November 3rd, 2014, you said the light
11:55:44 therapy. Is that what the UVB means?

A. Yes.

Q. And that continued from November 2014 to February of 2015?

A. Yeah. Usually it's given about twice a week.
11:55:54 Sometimes three times a week, so it's not everyday type thing, and then he had methotrexate added. MTX stand methotrexate, and it's usually given weekly, the methotrexate. They start -- usually it's lower dose, and then you increase the dose every week, with -- the idea
11:56:07 is that you -- adding both together, they actually work

better than each one individually.

Q. You mentioned, you know, the actual condition of the skin and there's wounds being on there. Is there any risk to a patient with the type of cancer Mr. Johnson had as to having those open wounds?

11:56:21

A. Infections are always the major risk for this disease. I mean, by far. You know, it's very difficult to actually maintain skin hygiene. Don't kid yourselves. It's not an easy thing, as much as you try. And it's not comfortable, and it's also very painful to do, but infections do occur, and you treat those with antibiotics when you can. And you treat a lot with topical -- so you treat the itching. You treat the infections. So these are the risks that usually you have.

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11:56:55

Q. How bad can an infection be in a patient with mycosis fungoides?

A. These bacteria could go into the bloodstream and could cause what we call sepsis or bacteria in the blood and so forth, so that could happen. Reviewing the records, I did not see that this has occurred for Mr. Johnson, that he did not have infection that has gone into the bloodstream, but that could occur, and it's a major risk factor.

11:57:10

Q. Was there any record he actually had infections?

A. He did have several episodes, I saw, where he

11:57:23

was treated with antibiotics, and I can tell you this: Sometimes you don't need to -- you know, diagnosing the infection is -- you know, you suspect it. When you look at the skin lesion and you see a little pus coming out or
11:57:37 you see something that's uncomfortable, you are not going to take chance and say, "Oh, I'm not going to treat this." You always error on the side of caution. Always, always, always. So you give a course of Keflex, or whatever antibiotic you believe is the proper one, and
11:57:57 hope that it actually helps.

Q. There's a note here that on December 3rd, 2014, they had to repeat the biopsy. Why would you have to repeat the biopsy?

A. Mr. Johnson will attest he's had more biopsies than he would ever remember. Unfortunately, this is pretty classic situation. And oftentimes, what happens is you repeat a biopsy, because you may suspect the disease is changing course, what we call large cell transformation. You see something -- you know, it's
11:58:26 really changing. It's really not behaving the same. Or you want to confirm the diagnosis. So it does actually happen.

When he went to the University of California in San Francisco, they had actually reviewed the original
11:58:38 biopsy that was done locally, and they wanted to repeat

their own biopsy. It's pretty typical for academic centers. I worked in one at the University of Chicago, and I -- it is very common that we sometimes want to repeat the biopsy and make sure that the diagnosis is accurate.

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Q. The next incident, January 29, 2015, you mentioned another spill. Was he still spraying Roundup at this time?

A. To my knowledge, he was spraying Roundup at this point.

11:59:10

Q. And from March 3rd, 2015, he was seen at Stanford; is that right?

A. He went to Stanford to the cutaneous T-cell lymphoma clinic, and he was seen again by several physicians there, and they concurred with the diagnosis. They did their own biopsies again. You see the same theme, right, repeating the biopsies. And then he was told to continue the methotrexate and also to start Targretin. I don't know if he started Targretin at that time. It's oral pills, a derivative of vitamin A, that tends to have an effect on this type of cancer, or he started a little bit after that, but that's what he was advised to do.

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Q. Okay. And at this point, it was a stage 2B; correct?

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A. Yeah. And again, I mean, the staging of this particular disease is actually very complicated. It's not Stage 1, 2, 3, 4. It got 1A, 1B, 2A, 2B, 3A -- and all these things. And all that means is how these
12:00:11 tumors, how much they're affecting the skin.

So oftentimes -- and Mr. Johnson will tell you they will strip him naked, and they will actually take a look at the entire body and see what's the percentage of the body that is covered by this cancer. And based on
12:00:27 that percentage, based on the mathematic calculation, they decide what we call the T stage, which stands for tumor.

Then they look at the N, which stands for the nodes. So he did have some lymph nodes on the CAT scan.
12:00:42 In fact, they did a biopsy of a couple of the armpit lymph nodes at some point and if they're involved or not. And sometimes the lymph nodes, you don't really biopsy -- you don't biopsy every skin lesion. I mean, it's -- you look at the skin. It's 80 percent covered, so you can't
12:00:56 really biopsy every single one. You always biopsy the representative lesion.

M stands for visceral organ disease, so did it go to the liver? Did it go to the lungs? Did it go to the bones?

12:01:10 And B stands for blood. Did it go to the blood?

So you do a blood test, and you check for these lymphoma cells inside the blood, and if there's so many of them in the blood, then we are dealing with what we call Sézary syndrome, but again, at that point, in Stanford almost -- about three years ago, he was told he was stage 2B. To me, as a clinician, I'm not sure that really matters, because the management is the same.

MR. DICKENS: Thank you. Now is a good time.

THE COURT: Well, Mr. Dickens, you have five minutes left with the doctor. Would you like to just wrap up with him, or do you want to break?

MR. DICKENS: If we can do it after lunch, and then -- we're going to address something with Mr. Johnson, so after lunch would be great.

THE COURT: All right. So, Ladies and Gentlemen, then we're going to break now for the lunch recess. Today we're going to shorten the lunch recess in order to be able to finish with Dr. Nabhan so he can go back home. So we'll be resuming again at 1 o'clock, so we're going to have a one-hour lunch break today. All right? So it's noon now. We'll resume at 1:00 p.m. Thank you.

(Time Noted: 12:02 p.m.)

REPORTER'S CERTIFICATE

I certify that the proceedings in the within-titled cause were taken at the time and place herein named; that the proceedings were reported by me, a duly Certified Shorthand Reporter of the State of California authorized to administer oaths and affirmations, and said proceedings were thereafter transcribed into typewriting.

I further certify that I am not of counsel or Attorney for either or any of the parties to said Proceedings, not in any way interested in the outcome of the cause named in said proceedings.

IN WITNESS WHEREOF, I have hereunto set my hand: July 20th, 2018.

<%signature%>
Leslie Rockwood Rosas
Certified Shorthand Reporter
State of California
Certificate No. 3462