im very excited to introduce the next

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editorial page and cnn
in 0 he received the dan david prize
in the category of bioethics im
confident you will enjoy his lecture
today

whenever i begin talking about the

ethics of clinical research id like to start with a little history to situate our thinking about research ethics because it didnt begin yesterday it didnt begin with the declaration of helsinki it didnt begin with nuremberg one plausible way of starting the history of research is in the year william watson who was then a physician at the foundling hospital in london sought to test two claims related to smallpox inoculation he wanted to know was preparing the patients with a purgative beneficial to their getting inoculated and second what was the best source of the inoculation was it an early pox or was it a late box he then conducted several trials the

first trial was he had

0 children treated with mercury and
yallop a very strong laxative and
purgative 0 with senna and syrup of
roses a mild laxative and purgative and

had no medications

all the children at the foundling

hospital had the same diet similar

clothes they played in the same field
and slept in the same dormitories
pus from an early park was used the end
point was the number of pox on each

child because

researchers at that time knew or doctors

at that time knew that the number of

pucks correlated with the severity of

the illness

well watsons experiment had a
deliberate study design he had controls
and matched subjects he controlled the
circumstances and other factors that he
could identify and he had a quantitative

end point

many historians say that clinical science began in with this

experiment

we can go on and there are many other
experiments that are important
9 was the first placebocontrolled

trial

9 was the first modern randomized

placebo control trial it was

streptomycin for treatment of tb

that is just two or three highlights of

the history of clinical research
simultaneous with the history of
clinical research is the history of
research ethics

the first recorded mention of consent in a legal case related to medicine occurs in in a british lawsuit slater a patient who had broken his leg had it rebroken by two surgeons and refixed to get better alignment the two surgeons were held liable for rebreaking the leg without consent because as the judge wrote it appears from the evidence of the surgeons that it was improper to disunite the callous without consent this is the usage and law of surgeons notice what the judge is saying at that point that

the common practice of
the surgeons and that they had violated
that important need for informed consent
well another important landmark in
research ethics occurs at the end of the

consent was necessary and that that was

9th century in 9

in the wake of pasteur and koch many

researchers are trying to find bacilli that are causing

various diseases giuseppe sanorelli an italian researcher working in latin america announced that he discovered the bacillus of yellow fever and produced yellow fever by infecting five patients leave aside the fact that yellow fever is not caused by a bacteria sir william osler at that time he wasnt sir william mosler who was merely chairman of the department of medicine at johns hopkins but the most important physician in the entire world got up at a meeting and condemned sanorelli saying to deliberately inject a poison of known high degree of virulency into a human being unless you obtain that mans sanction or consent is not ridiculous its criminal now notice what the most important physician in the world is saying at that time that you need consent to actually administer a toxin to a person and conduct research

on them

that event heavily influenced her walter

reed when he was appointed head of the yellow fever board by the us military because of that event walter reed decided that his research on yellow fever in cuba had to have certain ethical rules and the rules that he established were first there would be selfexperimentation every person on the yellow fever board would actually have to participate in the research he did not participate because he went back to washington when they were going to conduct it for consultations second there had to be written agreements with the other subjects the cubans who were participating third the cubans who were participating had to get payment in gold and if they died their family would get

fourth research was restricted to adult subjects you dont do research on pediatric patients until you do it on adult subjects and so its safe and fifth he said that every paper had to have the phrase with his full consent in the articles to make sure that everyone

payment in gold

knew they were

the research was done in compliance with the patients

well

we could go through a lot of history thinking about what the right ethical requirements are there were 0 principles in the nuremberg code the declaration of helsinki initially had paragraphs but weve proposed that there are eight distinct ethical requirements for research to be clinical research to be ethical first there has to be a collaborative partnership second the research has to have social value third the research has to be done in a scientifically valid manner fourth there has to be fair subject selection fifth there has to be a favorable risk benefit ratio to this research six there has to be an independent review of the research to make sure that its ethical seventh there has to be informed consent and eight there has to be respect for the humans who are participating in the research after theyve agreed in the

informed consent process now one of the things i want to emphasize is that those eight principles are not higgled higgledy piggledy put together theres an order you start at the top and work your way down well what do those eight principles mean well the first one of collaborative partnership means that to be ethical clinical research must involve the community in which it occurs it cant be subjected the community cant be subjected to the research they have to actually agree this requires community participation in planning conducting and overseeing research and somehow integrating the research results into the actual health care system it means avoiding supplanting existing health care services and the sharing of the rewards with the actual community mechanisms to achieve collaborative partnership can include community advisory boards patient advocates on scientific advisory boards even the advocates urging funding and remember the community doesnt just have to be a

geographic area it could be a community of patients with a particular illness second principle social value to be ethical clinical research must lead to improvements in health or advancements in generalizable knowledge we must consider how the research will improve health of the participants in the research the community in which the research is conducted and again doesnt have to only be a geographic community and the larger world research which is valueless does not fulfill this principle is research that cant be generalizable me two studies where weve confirmed some finding three or four or five times we dont need the sixth study and very importantly research which is not disseminated that has no value because no one can learn from it so research where the results are in the bottom drawer theyre never discussed that is valueless research that research actually is

unethical third principle scientific

validity research must be conducted in a methodologically rigorous manner that is practically feasible to be ethical the research must produce reliable and valid data that can be interpreted invalid research includes underpowered studies where you have seven people in one arm and eight and another arm what are you going to conclude studies with biased endpoints biased instruments to assess outcomes or statistical texts that arent appropriate to the study studies that cant enroll sufficient number of subjects are also not scientifically valid the fourth principle is fair subject

selection

the scientific objectives of a study not the vulnerability and not the privilege of patients should guide inclusion criteria and the populations targeted

for enrollment

lowering risk enhancing generalizability these can be considered convenient groups such as the children in a foundling hospital should not be

selected groups cannot be excluded
without good scientific reasons we dont
just exclude women piggle the piggly we
actually have a reason we might not want
to enroll them higher risk is a valid
reason to exclude groups thats why we
often test a patients renal function to
make sure that its adequate to the

research

and finally we shouldnt select rich or
politically powerful or otherwise
wellconnected people for promising
research studies and here a little
example might be helpful
several decades ago when
antiangiogenesis factors were coming on
to be tested in clinical research the
new york times on a sunday had an
article above the fold on page one
saying that this was going to cure
cancer this was the next best treatment
the next day monday

telephones at the several institutions
that were running that trial were
ringing off the hook people were trying
to contact members of the board of

directors or the head of the institute
trying to get on the trial because it
was so promising it would cure their
cancer well institutions had to actually
have a way of not just selecting those
people who had connections to the most
powerful people in the institution for
the study you have to have fair uh
subject selection and that includes not
only getting those people who are
wellconnected for promising studies
fifth principle favorable risk benefit
ratio this may be the most important
principle

in assessing the risk benefit ratio i
think that theres a fourstep
evaluation process first the risks have
to be identified assessed and minimized
the risks include physical risk were
all familiar with that death or
disability or infection psychological
risk depression anxiety we should also
consider in some research discrimination
social risks economic loss we need to
evaluate the magnitude of those risks
and the likelihood of harm but we

shouldnt invent the magnitude or
likelihood and when data suggests the
likelihood of harm say psychological
stress from genetic studies which has
been shown not actually to be present we
shouldnt invent those harms
and we should identify mechanisms that
minimize the risk maybe you do a study
thats high risk initially in the
hospital or you observe patients in the
outpatient setting before sending them

home

second identify potential benefits to individual participants and enhance them consider the physical psychological social and economic benefits but you should consider only benefits from research interventions not benefits from added health services say a special vaccine or payments that are not necessary to the research goals third step if the potential benefits to the individual outweigh the risk to the individual then you can proceed but what happens if the risk of the individual might outweigh the benefits

to that individual

then its important to evaluate the
risks to the individual against the
social benefits or the social value of
the knowledge gained if the social value
is high sometimes we accept higher risk

to individuals

sixth principle independent review investigators have multiple legitimate interests they have potential conflicts of interest independent review of the research is aimed to minimize these potential conflicts of interest independent review also assures society that it wont be the beneficiary of unethical research seventh principle informed consent informed consent ensures individuals decide whether they enroll in research and whether the research fits with their own values interests or goals for those who cant consent such as children and mentally impaired we must ensure that research fits with their interests usually through a surrogate decision maker well what constitutes valid

informed consent

there are four principles that have to

be fulfilled

competence of the subject
disclosure of information to the subject
understanding or comprehension by the
subject and voluntariness they decide to
enroll of their own free will now the
federal regulations require that every
informed consent document have eight

elements

that define the purpose and duration of
the participation the risks the
alternatives the benefits the
confidentiality of records the
compensation if injuries occur if any
doesnt have to be compensation persons
to contact to answer questions about the
protocol and voluntariness and the
patients right to withdraw from the

research

now when i was training many decades ago
i thought well you get the signed
informed consent down document
done thats the end of the ethics of
research that is wrong we need to

in research and thats the eighth and final principle the ethical requirements of research do not end with the signed informed consent document they also include monitoring subjects welfare protecting confidentiality permitting people to withdraw from the study if they want providing new information that might be learned that might affect their participation and informing the subjects of what was learned from the research at the end of the research so those are the eight ethical requirements

let me state all eight requirements are
necessary and essential to making
clinical research ethical we cant say i
like one two four and eight
we have to fulfill all eight but we also
should recognize that independent review
can occur in multiple ways irb is just
one of the mechanisms not the only
mechanism similarly informed consent are
per is a procedural requirement and
we dont always have to get a signature

to have valid informed consent in some societies a signature is not the way you demonstrate consent a handshake is or a meal is and so we need to fulfill the principle of informed consent but we should be sensitive to the cultural context in which it occurs such that we dont impose our values on another

community

in fulfilling the eight ethical requirements there can be conflicts and this we must recognize whats fair in subject selection could increase risks what enhances scientific validity may also increase risk whats necessary to respect enrolled subjects might compromise scientific validity theres no simple formula for resolving these kind of conflicts you have to adjust the design to meet the requirements it sometimes said we balance the principles or we weigh them or we specify the principles the important point is to be clear about what is being done and give reasons why

were balancing

different principles this has a very important corollary and that corollary is we can have two different approaches to the same research study and both approaches could be ethical even though we balance them differently finally all eight ethical requirements are universal they dont apply only to research in the us or europe no country can say well were different we have a different value system these eight ethical requirements apply to clinical research everywhere and anywhere its done all eight ethical requirements must be adapted however to the local health economic cultural and technological circumstances for instance the disease risk that affects your risk benefit ratio may be different in different countries and that will affect how you evaluate the risks of a research protocol thats not to say favorable risk benefit ratio is a principle you ignore its to say the context really matters and assessing whats a favorable

risk benefit ratio

so in conclusion let us remember that there are eight ethical requirements for ethical clinical research collaborative partnership social value scientific validity fair subject selection favorable risk benefit ratio independent review informed consent and respect for human subjects and they need to be fulfilled in that order when someone says is a protocol ethical you dont just jump down to the informed consent document you go through a systematic review starting with collaborative partnership and social value working your way down to informed consent and respect for human subjects so those are the eight ethical requirements that make clinical research ethical and it should be applied in every protocol we see the ethics of phase one oncology research theres a very commonly highly controversial area of research i like to begin with a patient that i once cared for she was a year old female she had a right breast mass that was excise a

09 to 0 centimeter mass 0 of of
her lymph nodes were involved with tumor
she had an er0 but a pr of the rest
of the work up was negative she received
radiation but no chemotherapy at that
time

three years later she had her occurrence in her liver and lungs

she was

initially treated with one chemotherapy regimen when that stopped working she was treated with a second chemotherapy regimen when her cancer progressed

in her liver

she and i began discussing phase one trials

as she said to me i want to fight my
cancer the first phase one trial failed
after two cycles her tumor continued to
grow she wanted another phase one agent
rather than hospice after a second agent
failed after two cycles uh she be came
into my office and i remember the day
very vividly she had substantial pedal
edema she could barely walk down the
hall to the room but she came to clinic

wanting yet a third phase one agent now

she wanted that phase one trial a lot of people would be critical of her getting the phase one agent how do we evaluate those phase one trials she enrolled in were they actually ethical remember we defined eight ethical requirements for clinical research to be ethical there had to be collaborative partnership social value to the research it had to be done in a scientifically valid way there had to be fair subject selection there had to be a favorable risk benefit ratio there had to be independent review patients had to voluntarily sign an informed consent document and the researchers had to respect the human subjects who were enrolled in the research now the main criticism of phase one oncology research when you actually boil it down is that it violates two of those eight principles it violates the favorable risk benefit ratio principle

and it violates the informed consent principle

what is it about the risk benefit ratio
well critics say that phase one oncology
research inherently has an unfavorable

risk benefit ratio

phase one research is not intended to
benefit the individual participants

phase one research has some risks to the
individual participants especially in
oncology when they have
toxic drugs and with no benefits but
with some risk the risk benefit ratio is
inherently unfavorable

if the risk benefit assessment is
unfavorable for individual participants
its argued then the research is
conducted only to gain knowledge for
society if the primary beneficiary of
the research is society then individual
patients are exploited for the benefit
of society as one critic put it the fact
that there is no treatment for a

therapeutic or even quote probably therapeutic phase one cancer drug

condition does not make any intervention

research may not be performed on terminally ill subjects under these guidelines because there is no reasonable probability it will be the best it will benefit subjects that is george annis from boston university criticizing the ethics of phase

research

relying on valid informed consent by the
research participants has been the
response to the possibility of
exploitation of patients in phase one
oncology research
so the belmont report says when the
research involves significant risk of
serious impairment review committees
should be extraordinarily insistent on
the justification of the risk looking
usually to the likelihood of benefit to
the subject or in some rare cases to the
manifest voluntariness of the

well

participants

then critics say but informed consent in the phase one oncology space is invalid valid informed consent requires

disclosure of information on the objectives of the research the benefits the risks and alternatives understanding of this information by patients and third a voluntary uncoerced consent but the critics say theres a problem physicians dont provide appropriate or accurate information to the subjects and physicians stress and exaggerate the benefits while minimizing the risks to research participants so for example leroy walters another bioethicist said consent forms are very often deficient and they over promise they make phase one studies sound like the cure for your

cancer

include the fact that
the informed consent documents
exaggerate but also that patients dont
really understand lots of critics will
say because patients are terminally ill
they cant understand the true
objectives the benefits and the risks of
a phase one study their understanding is
clouded by their physical state and

their hope for a cure what clear thinking patient after all will apt to take a toxic drug rather than receive palliative care and comfort measures when they have just a few months to go because terminally ill patients cant give proper informed consent because they cannot understand the information theyre given and because theyre vulnerable they cant provide valid informed consent vulnerable populations cannot provide informed consent and are protected through special safeguards these safeguards preclude research that provides no benefits to patient it all also includes greater than minimal risk or marginal increment or minimal risk to

be present

so how do we respond or analyze these critics

is it ethical to conduct phase one

research when there are no expected benefits to enrolled subject what types of phase one research is

being done and what are the actual risks

first we have to recognize it can be ethical to conduct research without benefits to patients if the knowledge to risk ratio that is the social value of the research compared to the risk to patients is reasonable a favorable knowledge to risk ratio requires that the knowledge gain is really socially valuable and greatly exceeds the risk to individual participants conducting early phase oncology research in which the drug doses are too low may not be socially valuable in terms of the knowledge about safety and toxicity to be gained ironically having a favorable risk knowledge ratio may require more risk because only then is knowledge gained about the actual drugs this thinking argues for the use of more innovative phase one design such as intra patient dose escalations accelerating dose escalation requiring one patient rather than three at very low doses of the drug

similarly we actually have to actually
look at the data on the
risks of phase one research how risky is
phase one research
the past is not prolonged so lets look
at the data

so a recent review of phase one studies

from the national cancer institute

covering years from 99 to 00

showed that the research has changed

only percent of phase trials are

with single chemotherapeutic agents

percent are there

single investigational agents of any

kind

and percent of these trials had

multiple investigational agents

of phase trials actually had

a proven drug in as part of that trial

so its hard to say that they might not

offer benefit uh similarly a review of

older trials showed that

about point seven percent of patients on

phase one trials got a complete response

and got a partial response so there

may be some benefits to these phase one

trials other studies have shown similar data

involved more than 0 000 patients for assess for response and more than almost 000 patients assessed for toxicity and they showed that in fact there were complete responses uh studies that had an approved and an investigational chemotherapeutic agent actually had a complete response rate of percent and in some cases what youre looking for is stable disease and had almost a percent stable disease

rate overall

those studies showed that 0 percent
of the patients had a 0 uh partial
response and percent had a complete
response with a third of them having
stable disease so there are some

benefits well

how bad were the toxicities 0 percent of patients actually ended up dying in the research protocol

and

fourteen percent had a grade four

toxicity so there are some serious risks
with phase one trials
overall we have to assess what the risk
benefit ratio was and whether thats
favorable or not

in mind some remarkable therapeutic
benefits in phase one oncology trials
early in the night or late in the 90s
when platinum was tried uh it had
greater than 0 response rate in
testicular cancer on the phase one trial
and percent longterm survival
so occasionally chemotherapeutic agents
do actually have in phase one do
actually have benefit similarly gleevac
had a greater than ninety percent
response rate in cml when initially
tested in the phase one

and some data suggest that enrolling in phase one research is beneficial to the quality of life of patients patients in phase one had stable quality of life and performance status over one course of therapy where similar patients receiving just supportive care had their quality

of life lowered so it may be that there
are some actual physical benefits and
maybe even psychological benefits
so what can we ex conclude risks arent

as bad as

many people think in phase one trials
only fourteen percent of patients had a
grade four toxicity the risk of death is
about point five to point seven percent
for terminally ill patients that may not
be a very high number and it would be
good to have more data especially with
the change in research to more
antibodies and more biologics
there may be benefits also to the
research many phase one drugs now have
greater than response rate and that
there have been several notable cases
where substantial therapeutic responses
even cures have been seen on phase one

trials

and quality of life may be better on a phase one trial than with supportive

care

so on the risk benefit ratio i think
many people assess the risks of phase

one trial more than they actually are and dont include or assess the benefits that actually result from the trial even though the trials arent intended to give benefit doesnt mean that they cant be beneficial both physically and psychologically to patients what about informed consent can terminally ill patients provide informed consent so do physicians misinform patients a old study from 99 actually recorded

the patient and the doctor qualitative
analysis indicated that the three major
information points were communicated in
eighty percent or more of cases the use
of indirect patient response however and
request for additional information

doherty at the university of chicago

looked at phase one oncologist he has

wasnt so good

sensed

their view of research 0

uh of those doctors thought that they

would add one or two months to survival

that percent uh complete respond or partial response and that a complete response would be one percent what this suggests actually is that doctors who uh administer phase one trials actually underestimate the benefits uh of research in addition they actually dramatically overestimated the risks they thought that there was a five percent death rate on phase one style studies rather than the 0 to 0 which actually exists so even phase one oncologist at the university of chicago overemphasized the risk and underemphasize the benefits that patients could get other studies have shown that you know most physicians discuss possible side effects possible risks possible benefits with patients where theres a discord between physicians and patients is on the expected uh change in the length of life most patients twothirds of them thought doctors did not discuss a change in the

length of life

physicians generally think that benefits
from the experimental therapy are about
adverse events about 0 percent and
that is uh

different than the actual data
underestimates the actual data limited
data suggests physicians do not
misinform patients and if they do
misinform they tend to overestimate the
risk underestimate the benefits what
about phase one consent forms
misinforming patients

here

we assessed data from phase one informed consent documents from 999 only 9 of all phase one oncology trials involved a previously untested drug 0 of these phase one trials had a therapeutic element to them that is they had a known drug with therapeutic

of those forms 9 percent mentioned
safety dose determination or toxicity as
the purpose of the trial 99 mentioned
that the study is research or an
experiment with most of these being

efficacy

prominent or highly prominent in the informed consent document thats in the first five lines six percent explicitly mentioned that research is not

therapeutic 9

refer to the chemotherapy agent as treatment or therapy without any mother modifier such as experimental when we looked at the risk section the risk section on average was lines and the benefits section on average was four lines its very hard to say that they overemphasize the benefits and underemphasize the risks in addition of these informed consent documents mention death as a possible risk percent mention death more than once again very hard to say that these informed consent documents arent giving an accurate view

possible benefits five only five percent
mentioned cure 0 percent mentioned life
prolongation

mentioned tumor shrinkage most of them
twothirds of them mention generalizable
knowledge as the benefit

ninetysix percent of these informed consent document had a separate alternative section percent mentioned a palliative care is an alternative percent mentioned standard treatment and twothirds of the mention no treatment as a potential alternative while the documents arent perfect its very hard to say that the informed consent documents overpromise benefits and minimize risk disguise the nature of the research trial or that its research and very few even mention cure much less promised cure well do terminally ill patients misunderstand the information theyre given even if its accurate study from many years ago showed that 9 percent of patients on phase trials had a prior therapy most had chemotherapy some had chemotherapy and radiation therapy darity looked at these patients and they were not particularly vulnerable were male were caucasian the median age was 0 and had some college or more

suggesting that theyre very educated

other studies looking at education also
so showed that almost twothirds of the
patients had some college education and
almost 90 percent were white again not
the typical view of a vulnerable

population

when talking to patients 00 percent recalled signing a consent document 9 recall that there was an explanation of

the study as research

ninetyseven percent call recalled the
explanation of risk and suicide and side
effects and 00 could recall at least
one specific side effect

almost all the patients 9 percent felt
well informed before they enrolled in
the phase one trial again very hard to
say that these patients werent well

informed

a survey of 0 patients some of whom
enrolled in phase trials
showed the following had read the
consent form carefully had enough
time to learn about the trial 9
said they had sufficient time to ask
questions and consulted some outside

physician again not exactly the case of patients who feel ill informed indeed almost all the studies show that ninety percent or more of patients who enroll in phase one stop studies feel well informed before they enroll so do terminally ill patients have a therapeutic misconception about phase one thinking theyre going to get the cure rather than a study looking for the maximum tolerated dose what were the reasons for people enrolling in trial 0 said they wanted to get the best care 9 thought theyd get some medical benefit in another study 0 thought theyd get some medical benefit

but

wanted an antitumor response
knew that the trial was a toxicity
determination
so one of the things we know is that
many people
think that they might actually get a
therapeutic response and that actually

is important theyre thinking theyre

going to get a therapeutic response may
not be maybe the rationale for why they
get on but they may actually understand
that the main reason for the trial was

to improve

the care of future patients indeed jaffe
conducted a study that showed that
percent of patients on phase one thought
that the main reason for the trial was

to improve care for
other patients and 0 percent of the
enrollees thought there may not be a
direct

patients can hope that theyll be the ones who are bene are going to benefit weve already reviewed the data on whether the patients are are vulnerable one of the things thats pointed out is they really dont fit the quintessential qualifications of vulnerable patients theyre not mentally incapacitated their physical environment such as prison does not coerce them and theyre not a group that has been historically discriminated against they tend to be white and well

educated its hard to say these people

are a vulnerable population

so why are terminally ill patients

enrolling in phase one studies well

they deny or refuse to acknowledge death

they want to go out fighting they know

their options and nothing would preclude

them from enrolling

SO

we looked at

phase one patients in a variety of centers we surveyed on the day they made a decision

and what we found is that most patients
really want to go out fighting we who
are struggling to escape cancer do not
obviously want to die of it we do prefer
death to the struggle of life under
cancers on tender rule
the enemy is not pain or even death
which will come for us in any
eventuality the enemy is cancer and we
want to defeat and destroy it that was
one patient from the university of
chicago phase one trial

would a side effect deter patients from

actually enrolling losing their hair
only five percent that would deter them
from enrolling gaining 0
pounds only six percent said that they
would be deterred from enrolling drugs
that temporarily undermine their ability

to think

said that would uh prevent them from enrolling

with the phase one informed consent

process communication about life

expectancy only percent of patients

discuss life expectancy with their

oncologist a moderate amount or a lot

and only percent were told a specific

time frame

this was problematic for many patients a
lot of patients said something like he
wouldnt answer the question i asked
about survival or i tried to discuss
life expectancy but he would not tell me
obviously discussing life expectancy for
someone who has less than a year to live
is not easy or pleasant we all really
want to avoid it but its clearly

necessary for many patients who are going to enroll in phase one oncology trials ironically it might actually increase enrollment at phase one trial since people are enrolling even when they think they have long life

expectancies so remember there are eight principles for ethical research collaborative partnership social value scientific validity fair subject selection fair favorable risk benefit ratio independent review informed consent and respect for patients who are enrolled the challenge the ethical challenge to phase one oncology trials are that its unethical because risk benefit ratio is unfavorable and informed consent is invalid studies of the risk benefit ratio and informed consent suggest these worries are not as serious as critics suggest the risk benefit ratio for phase one trials has changed because of the type of phase one trials have changed and they actually have some benefits a

low death rate and a low

grade four toxicity rate and they
substantially improve social knowledge
in addition patients whove enrolled
have sufficient information theyre
satisfied by the amount of disclosure
they have they understand most of the
information they get and they want to go
out fighting and they understand the

issue

like geraldine patients who enroll and face on trial want to fight their cancer and almost nothing will dissuade them from it oncologists need better training to provide better information about life expectancy but this may only increase enrollment in phase one trials what we can conclude is that phase one oncology trials tend to actually comply with the eight principles for ethical clinical

research

they are not invalid because of high
risk benefit ratios or invalid informed
consent thank you and remember keep the
eight principles of clinical ethical
research

and systematically evaluate any trial

whether its phase one oncology trial or any other trial