hi everyone
thank you for coming to the one health
initiative lunch and learn
um we are very very excited to bring in
this speaker today who's
a former of all himself dr paul plummer
he is the executive director of the
national institute of antimicrobial
resistance
research and education he's also a
professor in anderson chair in
veterinary science in the department of
veterinary diagnostic
and production animal medicine
diagnostics and production animal
medicine at the Iowa state university
he is board certified in food animal
internal medicine and has a phd in
veterinary microbiology
this training coupled with his
leadership of an active research
laboratory
placed him at the intersection of
translational research focused on
antimicrobial resistance
in addition he serves as a voting member
of the presidential advisory council for
combating antimicrobial resistant
bacteria and serves on the american

veterinary medical association committee
on antimicrobials
um today he will talk a lot about his
research and why we should
be aware of antimicrobial resistance
today so without further ado I will send
it over to dr paul plummer
I appreciate it very much and indeed it
is a
honor and a pleasure to be here I was uh
actually on campus I was down visiting
family have quite a bit of family
there in the knoxville area so it was
down on campus for
most of the day friday got to meet with
some of you and
I'm virtually with you today back from
back in
ames um and as Becky mentioned I
am of all through and through and uh
graduated
from the with my bs and from
microbiology in the
uh mid-90s and then from the vet school
in 2000 and then
um came back into my residency from 2000
to 2004
or yeah 2001 to 2004. so
I'm pleased to be visiting with you

today and and sharing a little bit about
what we're doing
um here at
and collaboratively across the nation
to address this issue of uh
antimicrobial resistance so
just a quick av check here can you see
my slide and is it the
full slide instead of the presenter view
it is full slide
okay great so um with that kind of
introduction
my plan today is to kind of
look at this issue of addressing
antimicrobial resistance using a
collaborative one health approach and
certainly there's a number of you on the
call that I'm um
good friends and collaborators with and
and recognize that
um you know this is an important topic
that
university of tennessee knoxville and
and others are certainly working on and
and so many of you will appreciate
um this important topic and and for
those that may not have us
quite as much uh experience with it
uh we'll start out with kind of some

shared definitions
a little bit of an overview of
antimicrobial resistance from a one
health perspective and
um so if that's repetitive for for your
knowledge I apologize but I think
that'll be helpful in getting us all on
the
on the same page and and then I'll turn
our attention to
really putting some ideas behind
how are we trying to put this concept
into
action and we'll talk about both
activities that we're doing here at
niamry the national institute for
antimicrobial resistance
research and education and then as well
as a
certification program for animal source
proteins that
we administer and then wrap up with some
general ideas so with that in mind
obviously this is a one health
initiative and and as deb and I were
were talking on friday when we had a
little bit of time to visit I
wanted to go ahead and include a bit of
my view of what one health is you'll see

that we have three circles here I think
you all have four
certainly we recognize the importance of
the crops and and
the environment as well but uh but we're
still using the three circle definition
but
you know you can see the definition here
I think this is this is pretty common to
what we all think about but as
dev and I talked one thing that you know
we
talked about is I I do think there's a
difference between
systems level human medicine that is
in some cases I see folks talk about you
know human medicine is kind of the
center circle
and then we're going to look at the
environment and animals
as the periphery system impacting human
human medicine and and that's different
to the approach that
I espouse and and we do through night
hammery
here where we would consider onehealth a
collaborative goal of optimizing
simultaneously
human medicine environmental medicine

and animal medicine and so
it's not that one of those is
prioritized over
another obviously human medicine is very
important to us
but we we look at from a more
centralized holistic view as opposed to
the human being and the center of that
and then considering the systems that
impact that human being so that's the
lens with which I come into this
discussion of one health and
we'll spend the next couple of minutes
I'm talking about
that's the lens that I'm viewing that
from
so switching now to what is
antimicrobial resistance at the
at the most basic level antimicrobial
resistance happens when germs
like bacteria or fungi develop the
ability to defeat the drugs
that are designed to kill them so
an antibiotic that once would kill a
bacteria
now perhaps is not able to kill that
bacteria because the
bacteria has developed mechanisms
genetic mechanisms or other mechanisms

that allow it to
survive exposure to that antibiotic that
used to be effective in killing that
it's different than in that sense we're
talking about it slightly differently
than
then some bacteria have an innate
ability to to ward off
antibiotics and so those are important
from a scientific perspective and
certainly as a
as a prescriber of antibiotics we have
to be aware of those
but specifically as we're talking about
antimicrobial resistance today we're
interested
in these resistance that develops as a
result of exposure to
an antibiotic or an anti-fungal
and antibiotic resistance is not a new
phenomenon and
in the next slide I'm going to show you
a quote
from sir alexander fleming that that
demonstrates that really since the
identification of penicillin
by fleming and others we've recognized
that
that resistance was possible that was

well documented before fleming one
won the nobel prize for identifying
penicillin
however what's changed kind of on a
global scale
is that these bacteria are developing
resistance faster than we're developing
new antibiotics and quite honestly our
pipeline for new antibiotics has
has completely dried up beyond
small startup smaller scale industry
almost all of our major pharma companies
have divested
in their antibiotic development programs
and
and really now antibiotic development
has been relegated to
kind of a startup or smaller scale
pharma type of industry and that's
largely because it's
it's hard for companies to to
get a good return on investment when we
develop new antibiotics that we're going
to use in a very limited number of
patients for a very short period of time
and and try our best to not use them
because we don't want to
increase that exposure and that
selective pressure

we'd like them to keep working and so
we're going to use them for as little
a period of time for in as small as
number of people as possible
that does not equate to um providing the
return on investment that many of these
pharma companies need
to justify the the investment of
research and development dollars that
and
and clinical trial dollars that they
have to put in to pursue approval
and so as a result you know the if
if a pharma company is looking at where
their best return on investment is
in terms of r d they're most likely to
focus on drugs they're going to be taken
for
an individual's entire life or for at
least for a prolonged period of time
and this is why we each see when we
watch television at night we each see
advertisements for for a variety of
different
drugs none of those antibiotics but um
drugs that are designed to address you
know diabetes
high cholesterol um cancer in some cases
these are drugs that individuals are

going to go on and take for a prolonged
period of time and so
that cost is is of development is
returned because of a prolonged cost of
of um purchasing x number of dollars per
tablet for the rest of a patient's life
whereas uh new antibiotics you know
because of that short duration small
number of people
we can't get that return on investment
from selling a very small number of
doses
so there's a lot of interest in that
area we're not going to talk a lot about
that today
certainly there's some current
congressional activity around how can we
incentivize and
and really accelerate this antibiotic
development how can we decouple
that antibiotic development from this
financial mechanism of return on
investment
being tied to the number of doses sold
and
it's a critically important issue one
that we won't dive into a lot more today
but that really is the basis for this
problem of

why antimicrobial resistance is truly a
a global pandemic that we're
dealing with at this time and just for
complete mistake I I mentioned
here you know this was part of fleming's
nobel prize speech where he said the
thoughtless person playing with
penicillin treatment
is morally responsible for the death of
the man who succumbs to infection
with the penicillin resistant organism
so resistance itself is not a new
phenomenon
what is new is we're now for
you know the last couple years for the
first time in our
history of of using antibiotics as a
major mechanism of
improving and supporting health of
animals humans and the environment
we've come to a period where resistance
is developing more quickly than those
antibiotics are being developed and
we're facing an inability to treat
diseases that we could have ten years
ago
um now with with antibiotics
so again this is a one health uh
group and and I'm not gonna spend a lot

of time on this but just a quick
uh quickly point out this image that's
from the cdc
threats antimicrobial resistant threats
document
it's referenced there at the bottom it's
available online and and I think it does
a good job of demonstrating
the one health nature of this issue and
so
you know there on the top um top left
you can see the human hospital
obviously we think about patients and
hospital-acquired infections all that's
really important but
you can see it also highlights right
outside the front door the affluent so
wastewater effluent coming from those
hospitals has high
concentrations of of antibiotics and
antibiotic resistant organisms
that are excreted in urine and feces
from patients receiving those treatments
in the hospital and those
move into our wastewater treatment
plants and waterways obviously
we have individuals leaving the
hospitals to go home
potentially carrying carrying a

resistant organism
or still being on outpatient antibiotics
we have health care workers coming into
that environment
hand washing all those normal uh
hospital hygiene type procedures
that can impact the the movement of
either antibiotics or antibiotic
resistant
organisms out of the hospital you can
see the vet
office there and then the community and
you know in many cases
people jump straight to the idea of
antibiotic use and livestock agriculture
which
certainly is an important component of
this discussion and has the potential to
contribute antibiotics and
resistant organisms to to ground water
and and run off and but
that is necessary to maintain the health
and welfare of those animals
but a lot of times people don't also
think about the impacts then of
of our pets or our households and so for
many folks in this country you know it's
much more likely that they have a dog
sleeping in their bed with them then

then um they have direct contact with um
you know live cal or with cow manure um
our pets are
in close proximity to us uh you know
some of those pets cats one may walk on
our kitchen counters or
um those dogs lick our kids in the face
and
and we're using uh in fact many of those
antibiotics that are used in human
medicine
are are widely used in small animal
medicine and so there's another
interface of this one health picture
that
that really is important and that we
can't
ignore you can see the airplane with
global travel
these organisms develop resistance and
so it's not just how we use antibiotics
here in the us but
how do they how are they used elsewhere
either in livestock agriculture or pets
or
humans and um is that going to move back
into
our country through through airfare and
and then you can see here at the very

bottom I think a
couple important points there
increasingly we're recognizing
the role of of plants and vegetables
and citrus crops in this issue as well
and so
you may or may not be aware that citrus
crops particularly
some diseases um in citrus screening
disease for instance
we do administer or or apply
antibiotics early or or topically to
trees and
in significant portions of orchards
there's also growing body of data and
concern around the use of
fungal azoles so antifungals for control
of crop
fungal diseases and the potential
association of
selection of anti-fungal azole
resistance in human
fungi and a growing body of evidence
that suggests even our pesticides and
herbicides
may play a role in kind of co-selection
for antimicrobial resistance so
indeed you know as as a practitioner of
one health

and I will freely acknowledge I’m very
biased but
to me antimicrobial resistant is the
poster child of
of one health because any of these
organisms pathogens or not that
acquire resistance have the potential to
move between the
all these human animal and environmental
areas
kind of unchecked and and so it's not
even necessarily
causing disease but the presence of
those resistance determinants
potentially provides a mechanism for
horizontal gene transfer
so with that in mind hopefully
we can all agree that uh antimicrobial
resistance is a
is a critically important issue um I
didn't spend a lot of time
talking about the statistics but you
know this truly is a global pandemic
the the number of individuals dying of
antimicrobial resistance
infections internationally on a global
scale is
is exceedingly high and you know in
comparison to

where we're at with covid right now it's
a lot easier to appreciate
the magnitude of these pandemics but amr
is a much more insidious
you know it's not going to go away with
a single development of a covid vaccine
amr is here to stay and we will continue
to
deal with that and as we do I think it's
increasingly
recognized that we have to take global
action on this issue and
address it to keep moving forward so
with that in mind
i'd like to now transition to telling
you a little bit about
some real ways that we're trying to put
that into practice what is
what is taking this concept of one
health and antimicrobial resistance
and and starting to put some boots on
the ground and address this issue beyond
um simply you know kind of having
conversation and recognizing the
importance of that and so
i'd like to share a couple of those
examples with you here over the next
couple of minutes and then
would be happy to answer any questions

that you have so the first of
those is i'd like to tell you a little
bit more about this national institute
of antimicrobial resistance research and
education that we call niamri and and
what we do here at niamry office
um and as a national entity so
really as you can see there our goal is
to coordinate action to combat the
global threat of antimicrobial
resistance
and so back in 2015 or so the
association of public and land grant
universities aplu
and the american association of
veterinary medical colleges aavmc
came to develop together and develop the
task force to
look at as antimicrobial resistance was
being increasingly recognized as a
as a key issue for global health of
humans animals and the environment
what can we as land-grant and public
universities and as
colleges of veterinary medicine do to
aid in this
uh in this addressing this issue and so
they released a
public report some of the folks on the

call were involved in
in that task force and the public report
and that's available on the
aplu website and one of the key outcomes
to that report was
you know they identified this effort
this issue that
in many cases particularly across
academic institutions
there was the efforts were disjointed
not only across the disciplines of human
animal and environmental health but also
between
different academic institutions so in
many cases teams at both places might be
working on the exact same thing but
didn't have awareness of of another team
doing that or likewise
veterinary researchers at the vet school
might be working on a particular
you know e coli resistance pattern and
human researchers at the human hospital
down the road might be doing the same
thing but there wasn't
cross-pollination of these you know
shared understanding across the one
health spectrum
they also identified that it was in some
cases not easy to identify who was

working on that problem you could
certainly go into kind of research
archives and try and dig that out but in
terms of
for instance a company or a government
entity you know saying well I need an
expert on this specific
issue in many cases it was somewhat time
consuming and hard to identify that
particularly if you want somebody that
had that information
in humans and then another person with
it in animals and perhaps the
environment
and as we all appreciate sometimes it's
difficult to collaborate across
um you know academic private
industry and academic um
lines and even inner institutional lines
and so
the solution that was outlined in in
this report was
to establish a national institute that
helps the stakeholders to locate
resources identify influencers
um promulgates collaboration and
sharing and then works collectively
to address this issue broadly at a
national scope with with influence on

the international components as well
so that was the process or the the
thought process behind the development
of this national institute and
how did that um you know kind of really
come about
the apo and aavmc then
in 2018 issued a call for potential
hosts for this institute
we here at Iowa state were one led a
coalition
along with the university of nebraska at
lincoln the university of nebraska
medical center in omaha the university
of Iowa
university of Iowa medical center and
mayo clinic in rochester minnesota
we had already been working together as
a regional consortium to address amr and
so we
submitted a collective proposal through
one
Iowa state university and there was
eight other proposals from around
the country to host ultimately through
that process we were fortunate to be
selected to host
nyamri but it was one of those prizes
that came with

no prize really so we we got the title
but there was no funds
to set up niamry per se
and so the university of um nebraska
lincoln and Iowa state university both
collectively
agreed to invest considerable funds at a
level of about half a million dollars
per year for three years for a total of
one and a half million dollars
to be the seed funds to continue to set
up this national institute and
and so now through that process we've
been working to develop our sustainable
financial model that we'll
briefly talk about here in a little bit
so who are we and what do we do
our first step in that 2019 was
to reach out to those other institutions
that had applied to host
and the thought process there was that
those institutions had gone through the
same process we had of
thinking about how do we make this work
how do we break down some of these
barriers how do we
um you know how do we fund this long
term
um obviously we have three years of

funding but how do we make that
sustainable so this doesn't um you know
completely fall apart after three years
and
and what do our what does our shared
vision and mission look like and so we
spent
2019 largely working with
those other institutions that had
applied the host that were
interested and willing to work with us
and no expense to them to develop this
shared
vision and mission that you can see here
and I'm not going to read those to you
those
you know certainly an opportunity for
you to read those now and and you can go
online and see those but
core to those processes was this idea of
one health
and and we really felt like there was
some excellent efforts going
on around the country with other groups
but they tend to be
bucketed into either they were
completely focused on human health or
they were completely focused on
um environmental health or animal health

and
really at the core of what we wanted to
do was to
break down those barriers between human
animal and environmental health and then
also break down the barriers to the
extent possible
change is always hard but to the extent
possible between
institutions and and between industry
and
academia and government so this was the
shared vision and mission that came out
of that process
and those other institutions were our
founding
members so in terms of our financial
structure
it's kind of a portfolio of
opportunities
some of that's grant funding but we
recognize that grant funding comes and
goes and so we can't rely on that as our
long-term sustainability so a important
part of our long-term sustainability is
a
annual membership fee um and so
institutions academic institutions pay
an

annual membership fee based on their
carnegie
ranking as a research intensive or less
research intensive school
industry pays an annual membership fee
based on
their number of employees
and then government and allied affiliate
groups
have a no cost but no vote
membership opportunity as well paying
members have a vote in our advisory
council that moves forward and our
priorities
so in 2020 uh early 2020 of course this
was when kovid was starting to
um starting to rear its ugly head but we
initially pulled in and formally
accepted as members
10 academic institutions that I'll show
you here in them
in a little bit and um and then in late
2020
uh as covid was still raging his head
opened our membership archives for
industry and
any academic institution that wants to
participate in our activities
so what do we do well first off I want

to say that we take a broad approach
so for us antimicrobial resistance isn't
just
bench top antimicrobial resistance it's
anything that
impacts the use or stewardship
or prevention of disease that ultimately
then
allows us to reduce our use of
antibiotics
so social sciences approaches to these
uh changing behavior is critically
important science communications
critically important economics and
ethics are critically important
on the science side though it extends
beyond the antimicrobial
resistance bench top work and and
includes precision agricultural
approaches either in crops or
in in livestock or humans that allow us
to
you know identify a single sick pig and
a pen of pigs earlier and perhaps
instead of having to treat the whole
barna pigs treat a pen
or an individual pick likewise improving
diagnostics the
engineering schools are critically

important in that
improving data upload so
we have cellular cellular folks and
um you know satellite individuals
from these different academic
institutions that are working with us on
how do we
better uh appropriate and and record
data on farm and get that centralized
and and then you know even over onto
the prescribing side so in veterinary
medicine and human medicine
and in crops as well where we're using
antibiotics or antifungals how do we
improve education around that
stewardship how do we monitor that how
do we
um you know impact behavior change and
sometimes clients um even that that may
come in
wanting an antioch and how do we learn
from perhaps what the human medicine is
doing in in their
in their offices and apply that to
veterinary medicine or likewise so this
is a very broad approach
it's not just the antimicrobial
resistance genes but
new antibiotic discovery and in fact in

most of the institutions that are
members we have scientists
that participate from like here at Iowa
state every college on campus
has scientists participating in our
activities
so it's definitely transdisciplinary and
building teams across campuses and then
across um
inner you know the nation um so we have
poor
four priority focus areas and and some
goals here I know this
uh text is kind of small but I'll
briefly
talk through those these are kind of how
we bucket our activities
so we have research certainly we don't
have niamri doesn't have a
lab in the back of our office here I
have a lab over in vetmed
and almost all you know many of our
scientists do have their own research
labs
but our research role is not doing the
primary research but helping to build
teams to be competitive for increased
funding helping them match partners so
you know when the industry comes to us

and says hey we have a new product we
want test and
x y or z knowing the resource mapping
and
the expertise across nyamre and who can
we send them to
to help facilitate that also enhancing
competitiveness of
research teams with amr grant
applications so providing
you know some some core language core
functionality
shared opportunities for for sharing
data for instance
or building those teams for larger scale
you know multi-million dollar grants
that cross disciplinary and
institutional lines and then really also
driving agenda
so we spend quite a bit of time in all
of our federal agencies
talking about here's priorities that we
need to be funding and research
and working to advocate for new funding
opportunities and particularly one that
we're interested in and working on is
one health opportunities I think we all
recognize that many of our funding
agencies even though we espouse the idea

of one health many of our funding
agencies still
tend to fund in buckets and so how do we
work with ostp
and others to break down those barriers
of um
you know funding and say let's truly
have some one health funding that
bridges
bridges and allows for human animal and
environmental sampling and
and input whereas right now a lot of
times nsf says oh it's health we don't
do that or
nih says that has animals we don't do
that so those are those areas that we
kind of combine with our advocacy
efforts education is important to us so
I'll give a couple examples of that but
we certainly utilize
um peer-reviewed learning outcomes to
improve and implement education provide
new opportunities and resources for
foster
folks to implement that we're in the
process of developing a learning
management system on our NIAMRRE website
that allows us to
share that information and really

focusing quite a bit on science
communication of antimicrobial
resistance and
how do we improve that so that when we
talk to a lay audience
this is really a complex issue it has a
lot of nuance and and how do we help
them navigate that nuance
uh to come to a decision that that
they understand and can make a best
decision
using that information advocacy is
really important to us
um you know prior to covid during
appropriation season
myself and some of the staff would be
into
into dc on almost a weekly basis
meeting with appropriators meeting with
federal partners
and and that has benefited us so
in the 2020 appropriations bill we
successfully advocated for a three
million dollar plus up to aphis
to focus on a one health antimicrobial
resistance dashboard
I'll tell you briefly about that
dashboard here in a few minutes so that
was

uh that was appropriate and signed into
law with when president trump signed the
omnibus bill in december of 2020.
current language in in the 20 I guess
that would have been 2021
um appropriation cycle current language
in the 2022 appropriation cycle
adds to that an additional two million
dollars of um
funding for that effort with intent
language for five million a year
thereafter
um on an annual uh basis so
um you know that's one example of these
uh how our advocacy efforts have
um driven that and that's largely
because we're we're working across those
niamery lines
and and have these 10 academic
institutions all with a common message
around this issue
and common shared vision and information
and we're able to to move that forward
with some specifics
and as I said another focus of the
advocacy efforts right now around
promoting this interagency funding
funding mechanisms for one health
and then also an interest is the farm

bills coming up and
how do we potentially look at providing
data security for antimicrobial
resistance or antimicrobial use data
right now
much of the funnel or the inability to
get
and share that data relates to
confidentiality concerns and liability
concerns
that could largely be addressed if if we
had
you know something akin to hip hipra
hipaa-like protections for agricultural
data and and so our dashboard
actually has statutory requirements
around those data securities that
provide
some benefit in allowing individuals to
feel secure and putting that information
in
but also how do we kind of provide
that more broadly so that we can open up
sharing of that data
and move that forward with artificial
intelligence and machine learning and
really identifying trends that we see
there because of the larger bigger
data sets that come become available

when we knock down and those that are in
the
data security area clearly no you know I
mean data privacy around
agricultural data precision agriculture
digital agriculture are equally
concerned about these issues and so we
we need to address those moving forward
and then the fourth bucket here is
collaboration
it's in everything we do but we want to
call it out as a specific
fourth focus area because we want to
make sure that's a driver of how we do
things
and not a byproduct of how we do things
so we strive
in all of our activities to make sure
that we're bridging that one health
component and very few of our activities
we do not find a human animal and an
environmental scientist participating or
providing input
and so we really try and walk the walk
when we talk about this one health
approach
so you know how's it going this is our
fairly up-to-date map we have 30 members
now coast to coast

that's tripled in the last uh about year
um and so we continue to bring in new
members on uh
um on a weekly basis almost it seems
like
um waxes and wanes with summer slows
down a bit but
those represent academic industry and
and affiliate groups and just to give
you a picture of our
academic numbers here um my slide seems
to have
froze up but I Iowa state university
kansas state university
north carolina state university UC Davis
Ohio state florida university of georgia
university of illinois Iowa and
university nebraska lincoln
my slides have locked up somebody tell
me if you can still see my slides
[Music]
the um you know the examples I I'm not
sure exactly where it dropped off but I
was talking about the antimicrobial
resistance dashboard that we're working
on and
how that's designed to address um some
of these issues
across one health and the complexity of

sharing data across one health as well
as the data security issues
and um and developing that we
currently in comparison to um something
many of you may be familiar with like
the norms database
if we look at the size and scope and
scale
of our database it's considerably larger
than that so
um for instance you know the
norms focuses on four major organisms
there's some broadening of that
as well but in our database we have 272
different bacterial organisms
representing 29 host species
as opposed to primarily being focused on
retail meat and
um 17 000 plus isolates and that's just
from a very small
starter data set that we put in from
several diagnostic labs so
as we continue to grow that um grow that
dashboard
we believe that there's significant you
know
opportunity and benefit of applying some
of these
data sharing as well as the

machine learning and artificial

intelligence

opportunities to these larger data sets

including

um you know even maldi tof data that

we're collecting from

from these different uh environments and

moving those forward so

we think there's a significant continued

opportunity there

to build those and use those and with

the funding from congress

move that forward I think my computer's

signing back in so we may be able to get

back to normal so I’m gonna

mute on my phone

now

see if I can share my screen again

apologize for the

technical issues here

hey dr former I just wanted to mention

real quick I think your

phone is still on there and and maybe

unmuted

it might be false there too just in case

there's reverberation

all right

all right so I was mentioning this

dashboard the goals are certainly to

improve harmonization
collection of integrated data across
veterinary diagnostic labs and then
across
the one health spectrum of environmental
and human samples
and the long-term goal of a controlled
access database that's publicly
has a publicly curated component as well
certainly allows access to data but
in a controlled manner that assures
confidentiality
so another example of this
um integration of one health that I
quickly wanted to address here was um
the a program that we oversee through
niamry this is
actually an independent 501c3 but
we oversee the data collection and
scientific oversight of this issue
part of this program called responsible
animal care one health certified program
this is a consumer-facing meat label for
right now for meats ultimately for eggs
and
milk and it utilizes a one health
approach to addressing food safety
or particularly animal health and
meat production so I'm not going to go

through all of the details of this in
the interest of time I know we're almost
out of time with these technical issues
but
suffice it to say that this is a pvp
program
that's that's administered through the
u.s department of agriculture
ag marketing service and it evaluates uh
five core components of
production on on farms similar
or other pvp programs that you might be
aware of would be for instance
labels like no antibiotic ever or
vegetable fed
cage free there's a number of those
other labels
however many of these labels we feel
like fall short on the one health
spectrum so
for instance and no antibiotics ever
label
in some cases those animals do need to
be need to receive antibiotics and so
they can be removed from that no
antibiotics ever pipeline but then they
when they receive antibiotics they now
have to be marketed through a second
tier

system and so this program one health
certified
goes around that is systems based all
the animals in the production system
move through that same pathway and carry
the same label
but we remove some of the um some of the
unintended consequences
of these more narrowly animal centric
certification programs that only focus
for instance on welfare or they may only
focus on antibiotics
ultimately we recognize through a one
health perspective that
antibiotics animal health welfare and
environmental
impact and environmental footprint all
are inextricably
tied together and so um developing these
marketing programs around a single
single entity can lead to trade-offs and
unintended consequences and we
see that with published data
demonstrating that raised without
antibiotic labels whether they're
turkey chicken or or
meat universally have concerns from
veterinarians in those systems about
animal welfare outcomes as well as

animal health and
and so um if you're interested in that I
can send you
uh those manuscripts and discussion but
um the
unintended consequences here we're
really the driver for the development of
this
new program that again is
is administered through nyamre so this
one health certified program is a
pvp open to all producers right now we
have turkey and
broiler labels swine will be coming out
shortly
in the next year or so and then moving
into the others
it's different because it's the only
program that crosses multiple kamaya
groups with core principles that cover
the entire animal raising process
it's an outcomes-based continuous
improvement process so
we actually collect all antibiotic data
the dose in juice why they're being
treated as well as an
outcome did they improve with that
treatment we collect all the information
for a carbon footprint

and life cycle assessment and then we
mix that all into this large data set
that um NIAMRRE administers in
evaluating and developing through this
continuous process improvement where the
standards are updated every three years
based on the data and the evidence base
that we get from that
shared and collected data so again this
is
um this is not a
not uh we administer it niamery we
administered the program but it
is an independent 501c3 that runs the
program we provide the scientific
support for it
as well as the data data collection and
data analysis components of that so
um you know we already talked about the
um the one health component of
the antimicrobial resistance dashboard
and in this case now this is an example
of how we're collecting antimicrobial
use
data on livestock and
and then moving that through in a
continuous process improvement
to really understand from an
evidence-based perspective

what antibiotics are being used are they
being effective
how is that anti-icu's impacting welfare
there
so there's five pillars of this program
um
there's a biosecurity pillar so they're
required farms are required to have
biosecurity plans
there's an ambient used pillar there's a
um
a a animal health plan pillar
an environmental footprint pillar and an
animal welfare pillar
so all of those are certified under the
same
program and evaluate collectively
so I know we're short on time there was
a couple other things I was going to
share around
inter-professional education and some
initiatives we have in that area
as it relates to our re our education
budget
our bucket and then some science
communication
topics that uh I was going to share but
I think with our
with our timing and our av challenges

here I’m going to stop there
open it up to questions and would be
happy to
then continue the discussion with those
that have questions after
after the meeting today as well
so Becky I don't know if um if people
put questions in chat if they have them
or
um yeah you can put your questions in
the chat or
um I everyone is able to unmute
themselves now so
however you want to do it and again my
apologies for the
av challenges I’m not sure what happened
there no you recovered well
any questions feel free to throw them
out there
everybody went to sleep while I was
doing my av
reconnecting
well I can ask one question it's dave
thanks for that presentation
how do you how do you think about with
the emory expanding to
typically other colleges we may not work
with you know engineering
arts and sciences social work etc

have you thought about that expanding it
out like you know taking the one health
idea
and bringing that into the antimicrobial
resistance you know we have nursing here
as well I could see them
being involved yeah so we we definitely
do
and here on you know on our Iowa state
campus as well as a number of our other
university campuses that are members
that
that has been a documented benefit so
as I mentioned you know here at Iowa
state we have
involvement from every college on campus
um
and and so you know it's an opportunity
that we bring those folks together
obviously they're not involved in all
activities um
that nyamray does but that we're able to
bridge those so
you know diagnostics has a lot of uh
impact on
material sciences engineering and those
folks we can bring
them in and pair them up with um
academicians in the

in the vet school or something like that
um the colleges the social sciences
colleges um you know are heavily
involved and
um an institution so for example one
case uh
case study I guess a little case study
florida university of florida joined and
and
you know they had written an application
and applied to host and
um so they had thought about this quite
a bit and they had a team of about 10
folks that were
you know were involved in that proposal
and so when we first started working
reaching out to them and
um visiting with them you know we we
initially started with those temp folks
through that process we worked with them
and using some of our research
intelligence approaches
and resources you know we we help them
identify now to where they have a a
group of um
I think they're up over 60 researchers
on campus
that are meeting there on the university
of florida campus on a regular basis

talking about antimicrobial resistance
and then
participating in amri on on the larger
scale and so
we do quite a bit of that research
intelligence
using a variety of databases and then
work with our members to better
understand their footprint
I shared with some of you a high level
research intelligence we've done there
at utk and you know we do see a
significant
number of researchers across campus that
are publishing in an area
um I believe that number was upward of
60 individuals publishing in
in this area with associate keyword
functions and then we work with those
institutions to help figure out how do
we
pull those and engage those groups um
together so
you you saw one of our focus areas is
collaboration and so
we think of a lot about you know how do
we get those groups
on a university campus to to interact
better and then

how do we get them to interact with
folks off of campus so
um there's no doubt um our you know for
instance another example and you served
on paccarb with me on the
inter-professional education
um working group that we just published
a report here in the
july on on the role of
inter-professional education
and um and amr
and so we had a task force through
niamri that participated in a
long-term training program around
developing interprofessional education
outcomes that was administered through
ipec and and now we're working to
mobilize her to essentially you know
move forward with some planning that we
did there to look at pulling in for our
next annual conference
a significant inter-professional
education effort that would allow
all of our members to invite folks from
you know physical therapy
nursing veterinary medicine human
medicine
mental health psychology um bringing
those folks together

for a an interactive workshop at our
annual meeting
focused on amr and inter-professional
education so
a couple examples there dave that where
we're certainly working to
try and break down those walls between
departments
colleges and then even institutions
thanks paul
hello paul hey I have a question so
so it's a very unique experience to
establish a national institute right
yeah I'm uh kind of interested in
how you convince those guys
to establish this institute
so in other words what's the most
challenging or difficult part
well so you know I mean the the idea for
the institute wasn't one that we
initiate
that came from the association of public
and land grant universities and the
american association of veterinary
medical colleges so
so we had a little bit of um you know
kind of um
I would say provenance or you know this
this was kind of a national scope right

from the start
um but you're right there were some
challenges and and so as you think about
this you know and
and I think particularly the
administrators on the call that
can probably think about this you know
as we as we put in our proposal and we
said hey we want to host the national
institute
um you know and and Iowa state and unl
put in
significant amount of money but there's
no
branding on the institute that looks
anything like Iowa state or unl
right so they're investing these funds
in in this broader national institute
and so
um you know that's not to say that
there's not value that comes to Iowa
state and unl through the process but
um again kind of getting administrators
to think outside the box and
and we're not going to slap Iowa state
on everything that's here
you know you can go to our website and
other than our address
being listed in the Iowa state research

park that's about as far as you're going
to find anything Iowa state-centric
on it and so um even within our own
institution and luckily they were very
good at it
and and we didn't have to convince too
hard but we had to break down
these you know these this silo of what
we want our name in the front of
everything
um and and really make this a
collaborative inner institutional effort
and so
I think that's one of the biggest
challenges as we as we you know
interact with other institutions that
would potentially be interested in
joining
and we'd love to see um utk join and
and stuff but you know it's kind of
getting in that mindset of
can we think beyond our institutional
borders certainly we want to
build capacity on an institutional scale
and so that's why we try and help
institutions pull their folks on campus
in this area together
but how do we get institutions and
administrators to think beyond that and

you know
let's start thinking about um this at
the national scale um and
that doesn't mean that an individual
institution has to give up their
their research agendas or their
priorities at all
I mean it's not like we circumvent and
take all of that but but
um at some level you know how do we how
do we
share that information and and what do
we do that
um you know really helps that
collaboration build um
and and so that's it's kind of a
different mindset than what
land grant and public universities and
industry have traditionally done and
so getting everybody to kind of think in
that mindset sometimes is uh
is a challenge thanks
so I know we're at time here I'm happy
to stay on a little bit longer if others
have questions
but I don't know um Becky or deb or if
anybody has any concluding remarks you
need to make on your
side and then I'll stick around here a

few more minutes if if others have
questions they want to ask
there's one question in the chat oh I'm
sorry um about
how NIAMRRE plans to work in developing
countries
if you want to address that first sure
yeah so obviously
um you know we're a national
institute it's not listed as
international but as I point out early
on
I mean international use of of
antibiotics is critically important to
this issue and so
obviously we're interested in that we
have a significant component of
you know many of our institutions
including you know here at Iowa state
but also
Ohio state UC Davis many of the
institutions that are already involved
in NIAMRRE have
massive international particularly
international one health efforts
I'm thinking you know Ohio state the
global one health initiative and and
stuff
so um our interaction with international

components is probably on two levels one
it's having researchers so across our 10
institutions right now we have
a thousand researchers that we've
documented across those 10 academic
institutions that work in the space and
we
know something about what they do and
their expertise and those types of
things and so
many of those are also working in
international spaces on international
projects and we help support that where
we can
data sharing and those types of things
and then the other
component of that would be awareness of
international impacts and so
for instance right now there's um some
you know
some efforts move moving through
parliament and the
European union that would um have been
since 2018 but they're kind of coming to
a head right now
and that would um
massively impact antibiotic use in in
agriculture in
in the EU but then would also impact it

for anybody that exported
products to the EU so that has a huge
impact on how we use antibiotics here in
the u.s
and at least right now that's almost a
complete
ban of use of antibiotics in the us that
changed in the last week
um so so
um obviously if we don't export to the
EU that's not a problem but so we
certainly
participate we do a lot of um you know
we're contacted by
who and fao for expertise
and so we look at our resource mapping
identify experts from our from our
institution that we can
nominate or move propose to participate
in panels
or boards and then we monitor
international
antimicrobial resistance issues and and
bring those back to our membership
and advocate or or disseminate that
information whatever is appropriate at
the time
so those are two examples of how we kind
of interact with that international and

then

individual researchers some of our

researchers entire amr programs are

international

um but you know but we're we're bringing

that in through those individuals

excellent thank you so much