UND Center for Comparative Effectiveness Analytics
Presentation to the North Dakota Statewide Vision & Strategy Group
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Today, we have the opportunity to improve health in North Dakota - by mining, not coal, but data, which is as abundant as oil and gas in the West and as powerful for health improvement as oil, gas, and coal are for economic development.

This is the purpose of the *UND Center for Comparative Effectiveness Analytics* - to **extract** information from the millions of data records that have been and continue to be computerized by health care providers, health insurers, public agencies like the departments of health and human services, and others **and** to use the information we **extract** to improve health and health care.

So what is comparative effectiveness analytics?

It is the process of generating evidence about health care efficiency, effectiveness, and access from existing data by **comparing** all kinds of interventions such as:
- Comparing communication strategies to change health knowledge, attitudes, and behaviors in populations
- Comparing workplace incentives to change risky behaviors among employees
- Comparing insurance company incentives to promote healthy behaviors among an insured population
- Comparing drug therapies for patients with chronic diseases
- Comparing types of medical devices for persons with disabilities
- Comparing tests that detect diseases such as cancer

The key difference between comparative effectiveness studies and other types of studies is the **use of real data from real people in real health settings**. These are not randomized controlled clinical trials or multi-site drug studies. They are not experimental studies with multiple exclusion criteria. These are observational studies that compare at least two interventions that are effective enough to be used in practice. They include all persons regardless of how many conditions they may have in order to determine effectiveness in natural settings. This implies 'head to head comparison' as distinguished from comparing an experimental intervention with a placebo. 'Head to head' comparisons answer the question that many practitioners ask, "Which of these interventions is best for my patient panel or population?"

Comparative effectiveness studies analyze what actually occurs in practice. They are based on health care decisions that are made daily and recorded in medical records and administrative databases. As their results are provided to clinicians,

insurers, public health professionals, and health policy makers, they will be incorporated into practice and, thereby, improve what we do.

It is true that everyone does not respond the same to every kind of intervention. So another benefit of comparative effectiveness studies is the size of the studies that are possible. Instead of **50 or 500** people, they might include **5,000, 50,000 or more.** Working across time and states, which is possible in the future, studies might include **500,000 or 1,000,000 or multiple millions**. The size of these studies permits more information about subgroups. They will provide more information about what works among different types of people - age, sex, race, ethnicity, and so forth.

What problem is comparative effectiveness analytics trying to solve?

We need real time, real life information about how to improve health among populations. The results of comparative effectiveness studies will provide decision support for providers, insurers, public health professionals, policymakers, and so forth. They will inform us about what health care interventions are the most effective, the most efficient, and among what populations? What works best for rural residents, urban residents, older people, younger people, men, women, immigrants, minorities, and others?

What will it take to conduct comparative effectiveness studies?

 First, access to data. This is essential, and many people in North Dakota are working to make data available for these kinds of studies. Senator Lee has been a leader, and the **North Dakota Health Information Network** (NDHIN), as well as the new **North Dakota Hub project** will make comparative effectiveness studies possible. Much of this work involves ensuring confidentiality of patient records and the privacy of clinicians and hospitals. It is important that we attend to these concerns, and this is a critical piece of developing these data systems.

Second, people with the expertise to conduct these studies. These studies are team efforts, and therefore, we will need people with data analytics skills, as well as, very importantly, physicians, nurses, and other clinicians; health policy experts, health insurers, and others. Today, at the UND MPH program, we are training students in analytics, as well as developing relationships with clinical and other experts so that we can put together appropriate teams for comparative analytics studies. Our educational initiatives will serve public health students, medical students, and other health professions. We are very excited about the next generation having access to BIG data and really beginning to look at how we use that information to inform our decision-making processes and improve health and health care.