Abstract Antimicrobial use in animal production has been a topic of concern with public health, animal health, and consumer advocacy groups. While the contribution of antimicrobial use in pork production to resistant bacteria impacting human health is uncertain, pork producers are committed to their responsibility to deliver safe and wholesome pork to consumers. In the U.S. there has been an ongoing industry effort to provide producers with the educational materials to enable them to provide safe products to the marketplace. We describe the development of a comprehensive producer education and awareness program focused on the responsible use of antimicrobials. The Take Care–Use Antibiotics Responsibly™ program is based on a set of principles and guidelines that provide the producer, with consult from their veterinarian, the basis for antibiotic use decision making. The goal of the program is to protect public health while preserving animal health and welfare.

Introduction The U.S. pork industry, through the Pork Checkoff, has an ongoing history of providing producers with educational materials about pork safety, including antimicrobial use. These include such programs as the Pork Quality Assurance program, the Judicious Use of Antimicrobials for Pork Producers Guidelines, and a variety of “fact sheets” explaining different aspects of antimicrobial resistance including a Pork Board policy statement on antimicrobial use. With increasing scrutiny on antimicrobial use in agriculture from consumer, government, and public health groups, the Pork Checkoff developed a comprehensive educational program covering all uses of antimicrobials for pork producers.

Materials and Methods During the fall of 2003 a series of focus groups with pork producers and veterinarians was conducted. The purpose of these focus groups was to: Explore producer attitudes and current behaviors as they relate to antimicrobial use, identify the key influencers for antimicrobial use, and identify the most effective ways to communicate about antibiotics with producers.

In May of 2004, the Pork Checkoff’s Pork Safety Committee approved the concept of the program and program development moved forward. Throughout the summer and fall of 2004, input on the program content and elements was provided by pork producers, swine veterinarians, the Food and Drug Administration, the National Pork Producers Council, the Centers for Disease Control and Prevention, and others.

Additional focus groups with producers were held to test program names, messages, and benefit statements. Prior to release of the program, a telephone survey regarding antimicrobial use practices was conducted with pork producers and swine veterinarians. The telephone survey will be repeated one year after release of the program to test if practices or attitudes have been influenced by the program.

The Take Care–Use Antibiotics Responsibly program was released in February 2005. Materials have been distributed through direct meetings with producers and via mailings to producers, educators and veterinarians. Agricultural publications have also developed stories that have focused on the program and its benefits.

In addition to delivering information about the program to agricultural audiences, the program has also been introduced to public health and other audiences.

Results 2003 Focus Groups The veterinarian was identified as the key influencer on antimicrobial use in agriculture, along with university researchers and consulting veterinarians. Secondary influencers included feed and pharmaceutical company representatives, peers, and agricultural
publications. Focus group participants indicated that antimicrobial use to improve nutritional efficiency was decreasing, but depending on disease status of the herd prevention and control uses were steady to increasing. Producers did not care for the term “Judicious” to describe antibiotic use. Producers were generally not aware of the regulations regarding the extra-label use of antimicrobials, while all veterinarians in the group were familiar with these regulations. Producers and veterinarians were aware of antimicrobial resistance as an issue, but it was not indicated as a key factor when making antimicrobial use decisions. Finally, a variety of communication methods were suggested as the best way to communicate with producers.

**2004 Focus Groups** Focus groups with producers identified their preference for the use of the term “Responsible Use of Antibiotics” rather than using the term judicious or prudent. In addition, some producers confused the term antimicrobial to mean disinfectant. Producers were given the choice of several names, and the Take Care name resonated with them, as it communicates a holistic approach of taking care of their animals, the environment, the industry, and public health.

**2004 Benchmarking Study** The benchmarking study identified differences in antibiotic use and behavior between small and large producers. The following areas were identified as having the most room for improvement, and especially by operators with fewer pigs:

a. Evaluating the results of antibiotics used for nutritional efficiency
b. Using group morbidity and mortality rates when deciding when to use herd or group antibiotic treatment
c. Using supportive care management before or during antibiotic treatment
d. Using techniques like acidification of feed or water, or electrolyte therapy before using antibiotics
e. Involving the veterinarian in the decision to medicate
f. Using antibiotics based on laboratory culture and sensitivity

**Discussion** The Take Care–Use Antibiotics Responsibly program is an industry initiative to address antibiotic use in pork production. In the first 60 days following the launch of the program the program was endorsed by pork producers representing over 45% of the U.S. production. In addition, the program was endorsed by the American Association of Swine Veterinarians, and has been acknowledged by legislators, regulatory, public health, and consumer advocacy officials.

The program has the potential to impact the ways in which antibiotics are used in U.S. pork production. Success of the program will be dependent on the effectiveness of delivery channels of the program to the approximately 70,000 pork producers in the U.S., its applicability to those producers’ production practices and their willingness to implement the principles and guidelines.

Because the program is not a certification or assessment program, it will be difficult to assess industry compliance with the principles and guidelines. Assessment of the program is planned by identifying demonstration farms and measuring changes in the use, attitudes and behaviors regarding antibiotic use by the people administering antibiotics. In addition, a follow up to the benchmarking survey will be conducted approximately 12 months after the initial survey. Because there is no adequate nationwide surveillance system in the U.S. it will not be possible to measure changes in antibiotic use due to implementation of the program. Although the program is based on principles that address the judicious use of antibiotics in pork production quantifying the impact on antibiotic resistance is not a program objective and remains a question. The use of a pre-delivery benchmarking survey of pork producers will enable a measurement of program implementation over time.

The program does, however, demonstrate the industry’s commitment to address concerns about antibiotic use. Information about the program has been delivered to public health and regulatory audiences to emphasize the industry’s efforts with this issue.

**Conclusions** The Take Care–Use Antibiotics Responsibly producer education and awareness program provides pork producers a set of principles and guidelines on the responsible use of antibiotics. The success of the process to bring the program to fruition was dependent on the efforts to define the concept, develop the content and program, communicate the need and deliver the program.
The concept for the program began with discussions among pork producers and experts in antimicrobial uses as part of Checkoff Pork Safety Committee activities. The intent of the program included addressing pork producer responsibilities as part of actions responsive to the Prevention and Control of Antimicrobial Resistance, Top Priority Action Items, of the Public Health Action Plan to Combat Antimicrobial Resistance authored by the Interagency Task Force on Antimicrobial Resistance: Conduct a public health education campaign to promote appropriate antimicrobial use as a national health priority. (Action Item #25)

Program development began by gaining an understanding of pork producer perceptions of the issue through focus groups and by other means. Consensus building was key as multiple drafts were authored to address concerns of veterinarians, allied industry, regulators, and public health officials.

A communications plan that acted on the input of pork producers and veterinarians was developed. It targeted pork producers with various sizes of operations and with various levels of understanding of the issue. Direct communications and media coverage was employed to provide the message of program content and availability. A communications network that included Checkoff Pork Safety Committee members and other independent and company-associated producers, state pork producer associations, veterinarians and allied industry companies was used to increase awareness.

Delivery of the program continues through Checkoff materials, meeting presentations, veterinarians as they work with their producer clients, and other means to ensure that awareness is maximized. The program is the first in the United States to address therapeutic and nutritional efficiency uses of antibiotics. The program has been endorsed by producers supplying over 45% of the hogs marketed in the United States as well as by the American Association of Swine Veterinarians.