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| Dr. Patrick : | … complete treatment. Once selected, resistant organisms can spread, and this is a function of human population density, of how easy it is to import things, based on patterns of contact, and it’s also affected by our infection control practices in institutions and our community hygiene practices in our communities at large. The concern, importantly, is not just the spread of resistant organisms, but of the transposable genetic elements that confer that resistance. Because the [element] can outlive an organism and be taken up by other ones.  Probably to summarize the recent trends that have been concerning with AROs, we’ve seen an increase in resistance among various gram positive pathogens to commonly used antibiotics, but this has stabilized a bit in the last few years, maybe a bit more macrolide resistant with *Streptococcus pneumoniae*. We saw a rapid increase in methicillin resistant *Staph aureus*, particularly the community associated strains, so that in most labs across the country, one in four to one in five *Staph aureus* isolates is now MRSA.  But this trend doesn’t seem to be continuing upward further.  Probably the thing that’s got us most worried has been the increase in Fluoroquinolone and cotrimoxazole resistance in bacteria that commonly caused urinary tract infections, like *E. coli*. And, just in terms of the tip-of-the-iceberg with the scarier stuff, the extended spectrum beta-lactamase problem is growing and everybody’s heard about the importation of the metallo-beta-lactamases from India that confer resistance to almost everything, again for *E. coli* and *Klebsiella*.  In this graph, this red line depicts the increase in fluoroquinolone utilization in British Columbia, and it is a population measure in terms of what’s used. And you can see a rapid increase in the last ten years, with a bit of a levelling-off recently. And lock-step with that, the blue bars represent the portion of *E. coli* isolates that are resistant to fluroquinolones, now exceeding 20%. The light blue bars, *Proteus*, are pretty well the same thing. So that illustrates the nature of the problem.  So the question is: are these things bearing consequences? This slide is showing somebody with boils at the back of their neck, which would typically be a staphyloccocal problem. And what we can tell you is that the rate of physician visits for cellulitis and abscess in B.C., adjusted for age, adjusted for population, has gone up as you see by this graph, these bars showing an increase, particularly accelerating during the period of time, that community-associated MRSA appeared. This means that over that same time that this organism appeared, we are seeing an increase in tens of thousands of physician visits for abscess and cellulitis.  And what about the burden of urinary tract infection with resistance happening there? We can also tell you the rate of physician visits for UTI is increasing in British Columbia. We can tell you that the rate of prescribing for urinary tract infection is increasing, but most especially in the elderly where the greatest rates of resistance are observed. And we can tell you that there were a number of papers at IDSA this year showing poor outcome for people with quinolone resistant UTI pathogens who received initial therapy with that class of drugs.  So here’s just an illustration of the increase in rate of physician visits for simple cystitis - NBC, increasing from about 50 to 58 visits per 1 000 population per year, and the fracture of the ankle is in there just to show not everything’s going up. We’re not seeing increased billings for everything going up.  This graph is a [mean prescription chart for cystitis]. You should really focus on the upper lines, because these represent the older age group. That line that finishes off at the top right-hand side is women – sorry – women and men are 90 and older. And what this graph is telling you is that the mean number of prescriptions for cystitis is increasing mostly in the older, elderly age strata. It used to be maybe 1.2, 1.3 prescriptions associated with a specific episode of UTI, now it’s 1.5 or 1.6, and the inference is it might be taking more courses of antibiotic to resolve specific infections.  And finally, a little bit more on the NDM-1. You heard about these NDM-1 carrying organisms coming in from India. The enzyme hydrolyzes and inactivates carbapenem antibiotics like imipenem, leaving very little in the armorarium left to handle things. We’ve seen a few importations to Canada. We haven’t documented spread in Canada, but I would say ‘yet’. I don’t know that I’ve read a study where we’ve taken a look at close contact, to see if these organisms are carried in , and that needs to be done.  So the big question for all of us is, what do we do about it? Resistance is increasing. We can maintain our surveillance of trends and utilization, and there’s good data that Rita Finley will be talking about at community level. We need to do the same thing in hospitals. We can keep inventing drugs, but we’re way behind the eight ball on that, as has been reported widely. We can take a look at our approach to infection control and in a way go back to Lister with a little bit more antisepsis, and to a degree, infection control specialists were talking about this at the latest IDSA. We can talk about programs of public and professional education to reduce unnecessary use of antibiotics. Of course, we don’t want to get rid of antibiotics. We want to get rid of unnecessary use. But it will probably be important also to bring in tougher measures that are less voluntary in order to preserve critical drug for use for critical occasions.  So I’ll start off just by reminding people that in Alberta and British Columbia, we’ve been running the ‘Do Bugs Need Drugs?’ program. This is a program of public and professional education aimed at improving antimicrobial stewardship and increasing hygiene through hand washing. We have continuing health education aimed at physicians and pharmacists, and we’ve added a number of other health care professionals who’ve got an interest. We’re trying especially to engage the dental profession. We’ve got educational sessions for the public that get into schools, to grade two, to daycare, to seniors, to employee groups. And we’ve got other elements of curriculum for teachers. And we’ve got ads that go out to the general public on transit and radio and television, to get our key messages across.  This is a graph of overall antibiotic consumption rates in British Columbia, and as you can see there was a bit of a worrisome increase between 2002 and 2005. After implementation of the program, nothing stellar has happened, but the trend has levelled off – the overall trend. And there’s actually been a little bit of a decline if you look at things carefully. But most encouraging for us is that in the young age group, when this has been the target, respiratory infections in the young age group, we’ve seen a fairly steady decline in prescribing in that area. So we figure that for some of the targets of the program, we’re beginning to see an overall response.  But we can’t rest on our laurels with this kind of thing. It’s very clear from the literature that education alone only changes behaviour to a certain degree. And what that same literature would tell us is that physicians like to get specific feedback about how their practice compares with other people. So we’ve teamed this year with the EQIP program, the Education for Quality Improvement in Patient Care, out of the Ministry of Health Services, B.C. Medical Association, and U.B.C. And this produces evidence-based, individualized prescribing portraits to physicians. And this year, every family doc in British Columbia will get one to compare their UTI practice with their peers and with desired norms, and the same thing with respiratory tract infections. On the right hand side of the page, you can see that this is comprised usually of a vignette, and then a graphical plot showing how the physician is doing compared to peers and compared to a direction. So for example, for simple cystitis, we’re trying to increase the usage of nitrofurantoin, decrease the use of fluroquinolones, and provide people with feedback about how they’re doing on that.  With ‘Do Bugs Need Drugs?’, there’s work going on between Alberta and British Columbia in financing and updating the ‘Bugs and Drugs’ guide, and making it a bit more available - more web-accessible and available - on PDA, hopefully arriving next year. And we’re also making it our business to brief governments on worrisome patterns of utilization, like last year’s 60 000 prescriptions of moxifloxacin in British Columbia, when the drug is supposed to be used only, really, for factory community-acquired pneumonia. I mentioned this back to Lister with infection control. There’s a lot of discussion among infection control practitioners about horizontal programs, in which there’s an effort to prevent infections at any site and by any organism in high-risk wards, by means such as chlorahexidine baths for patients on high-risk surgical wards. This has actually been shown in several studies to reduce all causes of surgical site infections by up to 50%. And this contrasts a little bit with what we’ve been seeing in terms of vertical programs, in which we screen for specific bugs, like MRSA and then try and, cohort people or remove carriage from that population.  It’s kind of interesting: everything old is new again. I actually went to the trouble this year of rereading Lister’s antiseptic principles of the practices of surgery, written in our year of confederation, 1867. After Lister, I read some of Pastor’s work on germ theory, and decided to get involved. And it was really remarkable stuff back then, but since the antiseptic treatment - and this was carbolic acid - has been brought into full operation my wards, though another expects under precisely the same circumstances as before, have completely changed their character, so that during the last nine months, not a single instance of pyaemie, hospital gangrene, or erysipelas has occurred in them. So everything old is new again, I suppose, with horizontal infection control.  Nationally, we’ve got the Association for Medical Microbiology and Infectious Diseases getting very interested in facility stewardship, to complement the community stewardship going on by programs like ‘Do Bugs Need Drugs?’ and others. You can see the involvement today of the National Collaborating Centre for Infectious Disease, for Antibiotic Awareness Day. The Canadian Nosocomial Surveillance Program is doing a good job of tracking resistant organisms in facilities, and has recently declared an interest in partnering with AMMI to pilot some efforts at measuring antibiotic usage at facilities. The Public Health Agency of Canada is re-examining its own role, and is interested in hosting a meeting to focus on surveillance and stewardship. And you’ll hear shortly from Rita Finley for CIPARS, that already has developed some great methods tracking antimicrobial utilization in the community across the country, in partnership with IMS.  And finally, we do need to catch up on Canadian policy development. It’s a bit embarrassing that there’s a bill before congress in the U.S. about banning antibiotics as growth promoters, but we have no similar action or briefing that I’m aware of in this country.  Finally, the research in this area promises to get pretty exciting because of the new methods coming online. The genetic epidemiology, specifically around extended spectrum beta-lactamases is getting very interesting now that we’re dealing with whole genome sequencing, and the ability to reconstruct transmission pathways. The measurement of utilization that people are talking about doing in facilities, and that we’re doing at population levels can be studied with respect to the prevalence of resistant determinants in the environment, and this is becoming an area of increasing interest. And we do need to look at policy change that affects human or animal use, and so forth.  Where else can be go? And this is sort of a question I’m leaving you with . . . We need a formal ‘one health’ approach with our veterinary colleagues to antimicrobial stewardship and this means that we get together and see what we agree on, rather than placing the blame on one side of the house or the other. Fundamentally, we live in one environment.  We need to think about newsletter functions to keep us all on the same page as to what’s going on, because it’s remarkable the number of people who are interested in this field. We need to involve food producers in setting the agenda, and antimicrobials. And we need to look at wise directions around agricultural utilization in Canada, but really, in North-America, because we’re a common market for food and our producers have to compete in that common market.  And finally I’ll sort of leave you with this question: Where would you steer us? What else would you add to this?  And, I think, that’s my prepared presentation. I’ll ask whether we’re taking questions now or at the end. |
| Moderator: | We can take questions throughout the webcast, and we will have time for a few questions now if people want to pose anything. Otherwise, we will just wait till the end of the webcast, and we’ll address all the questions at the same time. |
| Dr. Patrick: | Okay, so I see a few questions showing up on the screen down here. I’m a bit of a newbie with this, so . . . |
| Moderator: | Okay. Well, just feel free to answer a few of them. That would be great. |
| Dr. Patrick: | Let me see if I can get it to come up. What do you think about implementing stop-orders for some antibiotics in the facilities?  I think there’s ways to be both positive and negative about formulary restrictions. I think that some antibiotics should be reserved for specific indications. And at a minimum, prescribers should be writing down what that indication is. Some facilities, particularly in the States, require the assent of an on-call Infectious Disease person or pharmacologist, for use of particularly important antibiotics, for example carbapenem, and that’s something to consider. The other way to look at it is by letting people earn the privilege to prescribe those sorts of things by saying, if you’ve taken a specific course, or if you can demonstrate good knowledge of the indications, and if, when you’re audited, as we all should be in our prescribing, you’re following those indications, then you have the privilege of prescribing them without getting further sign off. And then, this question refers to stop-orders for some antibiotics. It becomes important to make sure that just like for everything in health care, standing orders are reviewed, and so antibiotics should be stopped unless renewed after a fixed course. Just like urinary catheter utilization should be assessed on a daily basis in acute care hospitals, and on a regular basis in long-term care facilities to see if the indications are still there. So that’s Dr. Baryll? Yep. Okay. Okay, I see a thank you, so maybe I hit it.  Okay, now a question from the University of Lethbridge, fourth year nursing: who will be lobbying for policy change with regards to antibiotic use for growth in agriculture?  My feeling about it is a few things need to happen. I think we need to get some formal linkage between veterinary medicine and human medicine, to see if we can develop a common agenda. The Public Health Agency, or the federal agencies, might be a good place for this to start. And maybe Rita Finley will talk about that a little later on. But when we come down to issues that affect trade, fundamentally this has to be briefed through the federal government, and I’m thinking of trying to develop a strategy for engaging the Public Health Agency and the CFIA in talking about how that briefing would look. We can’t do it at provincial level, but it affects us, because ultimately it’s going to be the federal government that affects trade issues.  Okay. Are there any newsletters that you’re aware of that I can start to receive?  I think I’d say, stay tuned on the NCCID website, the AMMI website, and B.C. Centre for Disease Control website where we have some regular postings. But this newsletter ... sort of a national collaborative newsletter on antimicrobial resistance, is something that’s a bit of a dream of mine, where all of the groups that are doing great work, often a little bit in silos, would have a chance to be canvassed once every month or two, about recent developments. And then we have something we can all read. So then I know what’s going on at CIPARS and I know what’s going on in CNISP, and I know what the Public Health Agency’s doing. And we can tell them what we’re doing with the ‘Do Bugs Need Drugs?’ program, that kind of thing. But I think that we have to think about that and who will take it on, I don’t know. We’ll probably talk to NCCID and the Agency to see what’s possible.  How are we doing for time? Any need to move on? I can carry on with questions if there’s no – |
| Moderator: | Yes, we could also maybe address some of those questions at the end, and move on to our next speaker at this point. Thank you, Doctor Patrick. And so, with that, I’d like to introduce our next speaker, Rita Finley, who is with the Public Health Agency of Canada. |
| Dr. Finley: | Thank you very much, Kelly. I am presenting not only on behalf of my centre, but also on behalf of all the different partners that we have within CIPARS. Today’s presentation is mainly about the Canadian Integrated Program for Antimicrobial Resistance Surveillance in Canada, or CIPARS for short. Let me see if I can work this out . . . okay.  CIPARS was established back in 2002 and it’s coordinated mainly by three groups within the Public Health Agency of Canada: the Laboratory for Food-borne Zoonoses; the National Microbiology Laboratory; and my centre, which is the Centre for Food-borne, Environmental and Zoonotic Infectious Diseases. The type of program that we run, of course, cannot be run as silo or alone, so we do have several partnerships, which include Health Canada, the Canadian Food Inspection Agency, Provincial Agriculture and health partners, academia, and private industry.  The main objectives for CIPARS are to provide a unified approach to monitor trends in antimicrobial resistance and antimicrobial drug use, not only in humans, but also in animals. We want to generate data to facilitate the assessment of the public health impact of antimicrobials used in humans and the agricultural sectors. And, allow accurate international comparisons with other countries that use similar surveillance systems, such as NARMS in the United States and DANMAP in Denmark.  Don’t get scared about this slide, but mainly what I wanted to show is that the Epidemiology of Zoonotic bacteria is not a very simple thing. It is quite complex and shows that antimicrobial resistances is also quite a complex issue. Keeping this in mind, the aim of creating CIPARS and developing the different components that form CIPARS, was to make sure that we carried our surveillance in an integrated manner, in order to really understand antimicrobial resistance issues. So with that in mind, and I hope that you can see this slide in the figure scheme, is that this is a graphical representation of the CIPARS program. We have the human component through which we collect clinical samples of *Salmonella*. We have the animal population which we collect data from sick animals, through farm surveillance, abattoir, and retail meat. We also collect antimicrobial drug-use information from the human population and animal populations, and of course through our reports, that’s where we integrate all of the information from all these components.  I am briefly going to discuss the different components of our program. The abattoir surveillance program began in 2002, and its aim is to provide national estimates, mainly from samples collected at federally inspected abattoirs. We collect information on *E. coli*, *Campylobacter*, *Salmonella*, these depend on which animals we sample from, as we collect samples from cattle, swine, and chickens. The aim is to have 150 isolates of each of these organisms - *Salmonella* and *E. coli* - and 100 of *Campylobacter*.  On the retail meat surveillance component, we want to get provincial estimates of antimicrobial resistance within organisms present in retail meat purchased, representing the closest source of exposure for the consumer, or the Canadian population. We currently have sampling being conducted in 7 provinces. The provinces of Nova Scotia and New Brunswick and PEI are considered a region, so they are considered under the Maritimes region. We look at generic *E. coli* in chicken and pork and beef; *Campylobacter* in chicken; and *Salmonella* in chicken and pork samples.  Another component is the farm surveillance, which is focussed mainly on grower/finisher pigs, as they’re the most proximal production class to the consumer and processing. We currently have 90 sentinel sites across the 5 different provinces, which contain the major swine-producing provinces across Canada. These are Québec, Ontario, Manitoba, Saskatchewan, and Alberta. Sampling is collected by 29 swine veterinarians, which allows us to protect the bio-security and confidentiality of the swine farms. And there are 2 supervisory veterinarians to protect confidentiality of corporate farms.  On the human side, we have been collecting information on *Salmonella* isolates since January first of 2003. Provincial public health laboratories forward these isolates to the National Microbiology Laboratory. For the main provinces of British Columbia, Alberta, Ontario and Quebec, it consists of isolates received on the first fifteen days of each month. However, for *Salmonella* Newport and *Salmonella* Typhi, we do receive isolates collected during the entire surveillance period, so the entire month. For the smaller provinces, Saskatchewan, Manitoba, New Brunswick, Newfoundland, Nova Scotia, and Prince Edward Island, we do receive isolates for the entire month. And so far, as of the middle of this year, we have over 25 000 isolates tested for antimicrobial resistance.  As I mentioned before, we also collect information on antimicrobial use in Canada. We receive this information through what is now IMS Brogan, and basically, their information is data on antimicrobials that have been dispensed by pharmacies. There’s approximately 5 000 pharmacies sampled, which represents approximately 8 000 pharmacies in Canada, includes all provinces and it contains data on dispensed prescriptions. IMS Brogan collects information, aggregates them and then projects the sample to the “universe”. Within the agency, we classify the antimicrobials based on the anatomical and therapeutic chemical classification, operated by WHO or ATC, as they are known. And we also convert the data into defined daily doses – or DDD’s. This will allow us to compare the information that we have on consumption at the international level.  It is well recognized that many of the chemical classes of antimicrobial drugs used in animals, are also used in humans, some of which are essential for the treatment of serious life threatening infections. It is for this reason that the Health Canada Veterinary Drugs Directorate has classified antimicrobials using pre-defined criteria, based on the implications of resistance to this drug to human medicine. The four categories that they have grouped the drugs into are: Category One, which is of very high importance; Category Two, high importance – and these drugs are still susceptible to those drugs labelled and grouped under the Category One; Category Three, medium importance; Category Four, which is of very low importance because they are not used in human medicine.  I am now going to go over some surveillance and research findings that we have obtained through the surveillance program. And I am going to start with human antimicrobial consumption. I hope that you can see this graph clearly as it is depicting the human systemic anti-bacterials dispensed in Canada. The total number of prescriptions and the cost per 1 000 inhabitants per year for 2009. In 2009, the prescription dispensing rate remained similar to that of 2008. The total expenditures, although they were still lower than that of 2003, appears to be increasing as of 2007. In 2009, a total of $20 744 per 1 000 inhabitants was spent on antimicrobials. The highest expenditures were observed among the macrolides and quinolones, which, as mentioned before are part of the Category One antimicrobials, and penicillins with extended spectrum. And the provinces with the highest expenditures were found to be Newfoundland, Prince Edward Island, and New Brunswick. Overall in Canada, the total numbers of DDD per 1 000 inhabitant days was 17.96. And the most commonly dispensed systemic antimicrobial classes were penicillin with extended spectrum, macrolides, tetracylcines, and fluroquinolones. We also are able to compare the Canadian antimicrobial consumption to thirty other European countries, and the data presented on this slide is for 2008. Canada ranked 14th out of 30 countries classified by increasing level of total antimicrobial consumption, which was similar to Finland and Czech Republic.  Sorry...I can hear someone talking? Did you have a question, or .. |
| Moderator: | I apologize, sorry. |
| Dr. Finley: | That’s okay. These next two slides show some of the research that we have carried out using the antimicrobial use data, and as we know, there is well documented evidence detailing the relationship between use and development of resistance. What we wanted to achieve from this research was to determine association between the rate of influenza and socio-economic measures on the consumption of individual macrolide and fluroquinolone drugs in Canada.  On this slide, we looked at the macrolide class, in particular azithromycin, clarithromycin, and erythromycin, as there was enough information for all of the provinces to conduct analysis. Overall, as influenza rates increased, the highest demand occurred in populations with high percentages of low-income individuals, high unemployment levels and low percentage of individuals with Bachelor degrees.  Clarithromycin demand was highest in populations with the maximum values of percent unemployment as the rate of influenza increased. And the rate of influenza was highly associated with macrolide consumption, which we think reflects the inappropriate prescribing and consumption of macrolide antimicrobials to treat viral infections. Or, it could be potentially due to prescribing for secondary bacterial infections. Because these drugs are used for multiple infections, it is sometimes hard to really discern whether they were truly used for influenza or for secondary bacterial infections.  Similarly, this shows the work that was conducted on the fluroquinolone data. For ciprofloxacin, levofloxacin, ofloxacin and afloxacin, overall the significant socio-economic predictors varied among the individual fluroquinolone drugs, which may reflect the range of infections that are treated with fluroquinolones. For both ciprofloxacin and levofloxacin, DDD’s were associated with medium family incomes, and the rate of influenza was found to be positively associated with levels of levofloxacin prescribing, which was highest in demand in the populations with the highest percent of education, as influenza rates increased.  Another study that an epidemiologist within the CIPARS group conducted was to determine the burden of illness associated with antimicrobial susceptible and resistant *Campylobacter* infections in the Perth and Wellington-Dufferin-Guelph Health units, between 2002 and 2004. The study consisted of laboratory confirmed cases within this area, and the questionnaire collected information on burden of illness, risk factors, medical history, and demographics. Antimicrobial susceptibility was tested by using E test and there was a retail chicken component as well. The mean number of days from the beginning of symptoms to the beginning of antimicrobial treatment was 9.81 days. 54% of the cases were prescribed an antibiotic for their campylobacteriosis, 30% had culture results available prior to receiving an antimicrobial treatment and 21% had culture results available prior to symptoms ending. Participants were asked whether or not they had heard of campylobacteriosis as a result of food or water borne illness, and 85% had not heard of *Campylobacter* before, as a food or water problem. And . . . I’m running out of time here . . ., this slide shows information on the antimicrobial drugs that were prescribed in laboratory confirmed cases of campylobacteriosis, and 16 cases were treated with antimicrobials that were not recommended for treatment of campylobacteriosis. And as you can see, the main drugs prescribed, were azithromycin, ciprofloxacin, and erythromycin.  Moving on to the animal antimicrobial consumption from data that we collect through farm surveillance, as you can see here, 20 farms use categorized drugs of very high importance to human medicine. That use was mainly as injectables, so likely represents a small number of animals per farm. The majority of drugs used in swine farms are categorized in levels two and three, as can be seen on this slide.  In terms of what we have observed of resistance, ceftiofur resistance was almost absent in generic *E. coli* from pork, reflecting the low use of this molecula at farm levels as we saw before. On the other hand, ceftiofur resistance was around 30% in 2009 in chicken *E. coli*. Nalidixic acid resistance was also observed in low prevalence in chicken *E. coli*, while it was not detected in other species.  As I mentioned at the beginning of the presentation, one of our strengths within our surveillance program is our ability to really integrate information, both from the human and agri-food surveillance data. And one of the issues that have been identified through our surveillance data is the presence of ceftiofur resistance in chicken *E. coli* and in human and chicken *Salmonella* Heidelberg by trimester in Canada. In 2003, we noticed that ceftiofur resistance was seen in higher prevalence in retail chicken and humans from Québec, than chicken and humans from Ontario. During that period a study from the University of Montréal indicated that 70% of the flocks surveyed had received ceftiofur. After we published the data in 2003, Québec chicken hatcheries voluntarily withdrew the use of ceftiofur for approximately 2 years, and that’s where you can see the decline in the prevalence of ceftiofur resistance in chicken and human *Salmonella* Heidelberg, as well as in chicken generic *E. coli*. The return to ceftiofur use, which started approximately in 2007, has evolved in the re-emergence of ceftiofur resistance in chicken and in humans. Yet at levels of resistance that are a little bit lower than that found in 2003 and 2004, which would indicate a lower level of use than in the University of Montreal study . This re-emergence does remain a concern for the Public Health Agency of Canada. Ceftiofur resistance is almost always accompanied by resistance to ceftriaxone, which is very high importance in human medicine, especially in sub-groups, like pregnant women or infants, where other drugs like fluroquinolone are not indicated.  I apologize for presenting so much information to you in just fifteen minutes, but I wanted to give you a quick overview of the type of data that we currently have and that we collect in our surveillance program, and our ability to integrate all of the information that we have. And as you can see on this last slide, it’s not a program that can be carried out by just individuals or small groups. It is successful because of the relationships and partnerships that we have established in Canada, not only at the government level, but also at the provincial, and with associations and commodities.  I don’t think I left myself with time for questions, but I imagine that if you want to submit questions for the question period, I would be more than happy to answer them for you. |
| Moderator : | Yes. And we will invite people to the section where it says Q & A. We will move along now to our next presentation by Dr. Yvonne Shevchuk, who will be providing a pharmacist’s perspective. |
| Dr. Shevchuk: | Okay . . . thanks very much, and I do appreciate this opportunity to bring this perspective in terms of what the pharmacist’s role or what pharmacists can do in terms of Antibiotic Awareness Day, and antibiotic use and resistance in general.  I’m going to start with a term that I think we’re all pretty familiar with, but just to remind everybody that antimicrobial stewardship is defined as: *the correct selection, dosing, route, and duration of antimicrobials in combination with infection control practices*. Correct selection also includes the decision of whether or not an antibiotic is appropriate at all, I think. And pharmacists have had a role in stewardship, particularly in hospitals that do have stewardship programs. So they’re certainly involved in monitoring antibiotic use patterns, prospective audits of particular antibiotics that are identified, maybe of concern, or antibiotics that require restrictions, or should be restricted. Often, antibiotic utilization committees are part of this process, and the creation of antibiograms and those types of things. I think it’s interesting to note that the new hospital accreditation standards actually are requiring antimicrobial stewardship programs to manage antibiotic utilization within institutions. So that’s something, certainly, that if we’re a part of institutions, we’re all going to need to think about.  Relative to community pharmacists, and I think it’s important to remember or think about the fact that actually most pharmacists do practice in the community and not in the hospital, hospital pharmacists actually have access to more information that they can use. In particular, for example, culture and sensitivity results, or just information in the chart with respect to the diagnosis and things like that. So that it’s perhaps easier to make recommendations regarding what choice of drug might be useful in a particular situation and the ability to tailor the antibiotic therapy based on culture and sensitivity results. The ability to adjust dosing, for example, based on renal function or hepatic function, those kinds of things, or specific recommendations to avoid drug interactions with antibiotics.  So the other advantage that maybe hospital pharmacists have is relatively easier access to physicians in terms of you could actually run into a physician on the ward or, you know, it might be easier to page him overhead, as opposed to the community, where it’s sometimes a little bit more challenging to actually make contact with the physician, if you have a question about an antibiotic prescription or a concern. Although obviously physicians are still accessible; they’re perhaps not as easily accessible. And that is, I think, one of the challenges that pharmacists face in terms of perhaps making recommendations on antibiotic prescriptions.  I think it’s maybe a little bit easier to establish kind of a relationship of trust, and that’s really required if people are going to work together on any kind of a strategy, including strategies to optimize antimicrobial use. So I think stewardship in the community is just as important, or even more important perhaps than in the institution. Most antibiotic prescriptions are written for out-patients, and most viral infections that we talk about not requiring antimicrobial management are going to be handled on an out-patient basis, or in the community as opposed to in the hospital. So stewardship, I think, within the community is very, very important. As I mentioned, community pharmacists may have less access to information, like the diagnosis or renal function or culture and sensitivity results, which sometimes make it more daunting to make specific recommendations or inquiries about specific prescriptions that are written.  But what I do want to point out is that there are many strategies that are out there that potentially can optimize antimicrobial use, and it would be most useful if health care professionals work together on those strategies. So for example, things like watchful waiting for acute otitis media diagnosis. Or deferred prescription for things like, again, otitis media or even . It’s not uncommon for a parent or a patient to come in to the pharmacy, after seeing a physician, and making a remark like, the doctor says my child doesn’t need an antibiotic right now, or, you know this cough doesn’t need an antibiotic right now. And they’re sometimes kind of sceptical and they’re often looking for reassurance. So obviously the pharmacist could provide that reassurance, especially if they know what strategies are being used in the community, and then can reinforce the information about those particular strategies.  So I would really encourage, particular physicians and community pharmacists who are working within a community, that they can define to communicate about what strategies are being used, or they would like to use in terms of optimizing antimicrobial use.  There’s a lot of other ways that I feel pharmacists could have an impact on appropriate antimicrobial use. Things like encouraging the use of first-line therapy. Dr. Patrick mentioned very high macrolide and fluoroquinolone use, so using or recommending penicillin as opposed to azithromicyn for a strep throat. There’s also information out there with respect to duration of therapy, so recommending or encouraging short courses of, let’s say, clotrimoxazole or fluroquinolones, for uncomplicated urinary tract infections, as opposed to 7 or 10 days that may not be required. Optimizing the pharmacodynamics of antibiotics. So using the higher dose, shorter course strategy for pneumonia, as opposed to longer courses of lower doses. Or recommending for example the higher dose amoxicillin for otitis media, when you know there’s a lot of penicillin resistance *Streptococcus pneumoniae* in the community. The obvious message here is that there needs to be a lot of communication amongst health-care practitioners in the community, and so good communication really is the key.  If you go to the website for Antibiotic Awareness Day, one of the things that is posted on the website is the non-antibiotic prescription that physicians can use with patients. I think this is a wonderful communication tool, not only to communicate with your patients, but also it lets the community pharmacist know exactly what the doctor is thinking in terms of managing that particular patient.  The other thing that is well recognized is that people with viral illnesses are still sick, and they need acknowledgement of that, and they are looking for assistance with those symptoms. And it doesn’t necessarily have to be an antibiotic, so there are lots of over-the-counter types of preparations available. Some are more effective, some are less effective. Pharmacists can certainly help patients choose the product that’s most suited for them. They can tell them what to expect from the product, how well or well it will work.  One of the examples I think is interesting in the literature that’s been documented, is care-givers or parents who end up in an Emergency Room because they can’t get a child’s fever under control. When you look at those parents, or look at those studies, what’s often found is that the antipyretic has been dosed inappropriately, the child’s been under-dosed, there’s fever phobia there, or parents are trying to lower a temperature to a degree that’s unnecessary. So something as simple as helping a parent dose a child appropriately can potentially reduce visits to either physicians’ offices or emergency departments.  The prescription pad that I talked about also talks about things like, advice to stay home and advice to rest, and taking fluids, and things like that. So that could certainly be reinforced by the pharmacist.  I’m not going to spend a whole lot of time on this particular slide because, we’ve all I think seen it many times. But these messages are the same messages that all health care professionals should be, working with in terms of antibiotic awareness, and these messages certainly are the same ones that are reinforced by many pharmacists, through programs like, ‘Do Bugs Need Drugs?’, or other types of things. So, the importance of hand-washing, the fact that antibiotics don’t work for viral infections, and then when antibiotics are required, are used, how to use them safely. How long to use them, what to do about certain adverse effects, when they need to see their physician, things like that.  So for me, one of the real keys is the fact that most literature that you read basically says that in order to get this message out and across, you really do need to have a good education of not only health care professionals, but patients and consumers, and that really this is a team effort and we should be all working together as health care professionals to get this message out.  And I think we all appreciate very much that it’s much easier to work as a team, if you know your team members, if you know who the others on the team are. So there are some great examples out there of pharmacists and physicians who, do communicate very well, work together, have strategies to reduce antimicrobial resistance, but really, unless everybody involved knows what the other’s doing, I think it’s much more difficult to achieve that goal. And I don’t mean to exclude nurse-practitioners and others. I mean there’s certainly others who would prescribe and use antibiotics, so the same would be true for that.  One of the things that we do fairly regularly here in Saskatchewan is a program that was initially started in Ontario. It’s called PAACT: Partners for Appropriate Anti-infective Community Therapy. So we try to run a couple of sessions every year, and find that the family physicians and pharmacists who participate like them because they’re case-based and they’re discussion-based, and you can talk, talk through difficult scenarios or cases or things like that, with everybody just sitting around the table. So we have a couple of family physicians, an emergency room physician, and a couple of pharmacists who are really involved. And I would encourage you, if you’re interested in that kind of work, to build a team and maybe do those kinds of activities within your community.  And that’s all I have to say for today. Thanks so much. |
| Moderator: | Thank you, Dr. Shevchuk. We have some questions that have come in that were for Rita Finley. |
| Dr. Finley: | I think that’s a very interesting question. In terms of reporting, it’s something that needs to be discussed mainly from the agri-food side, and I don’t think I can answer that question myself because I work mainly with the human component, and it’s the agri-food component that knows better who are the people that have the mandate who look after that. However, I do feel that we do have within the CIPARS component surveillance on clinical isolates, veterinary clinical isolates. So we do get a sense of what is occurring at least on the animal side, and within clinical isolates, and if we do observe any issues arising there, we tend to also have a look at what is happening in the other CIPARS components as they are the ones that are from healthy animals that are going to end up on the table per say, at the retail end. I think that that’s a conversation that definitely would need to take place between the Public Health Agency, the Canadian Veterinary Medical Association, but mainly to have also on board, Agri Food and Agriculture Canada, and the Canadian Food Inspection Agency. But again, it’s something that I think has to be dealt with by C.F.I.A. or Agri-Food Canada, as they would have to have a mandate on that. |
| Moderator: | Okay. Thank you very much. I do have one other question, but I’m going to first of all go to a different question that was posed, which I think could be addressed. Someone is asking for advice on how to [noise] back-up. Dr. Patrick? |
| Dr Patrick: | Yeah. I’ve actually been reading a few studies lately about what seems to be working the most in hospitals and community settings and stuff. And there was an interesting study, not published yet, but I was reviewing, out of Europe, where what seemed to work the most was involving physicians directly in guideline development and ownership, and dissemination of the information. Now, I don’t know if that’s possible everywhere, but I think physicians most of all want to feel like they have an element of control over what’s going on. They usually do understand the rationale for things but they don’t like to be impotent with respect to the decision making. So usually getting a representative body of docs involved in discussing the goals and the methods of implementation of a stewardship program becomes important, and it’s important that it goes beyond just the typical I.D. pharmacy people if possible. The other side of the coin in looking at these things that I found really interesting is that stewardship programs work best when no one is exempt. So that means that the I.D. specialists who goes on the ward doesn’t all of a sudden get to prescribe, you know, five things that wouldn’t normally be prescribed for a given indication just because they did two years fellowship in Infectious Disease, because that undermines the whole stewardship thing. And so, it’s getting everybody to buy into the same guideline. |
| Moderator: | Okay, thank you. Dr. Shevchuk, did you want to address the same question? |
| Dr. Shevchuk: | Well, I’ll just comment that I agree completely, and I have a little bit of personal experience in an institution where in fact, once the culprit physicians were asked to write the guidelines, just had a major turnaround in their whole attitude. So I mean, I think that the key, when you get buy-in from them and they realize what you’re trying to do, then generally there’s, there’s really, really good cooperation. |
| Moderator: | We have one final question for Dr. Finley: Who will we update drugs of importance to fight against NDM-1? |
| Dr. Finley: | Well, there’s two, I guess, groups that are currently categorized drugs of importance to human health. So there’s the Health Canada Veterinary Drugs Directorate, but it’s mostly in terms of drugs that are used on the animal sector that are of human health importance. But WHO also has created categorizations of microbial drugs, and it was just updated, I believe, last year after a meeting that they held in Geneva. So I believe that as part of the process they are going to be revising these categorizations, but they do take into account the type of infections and the type of drugs that are used for treating those infections, and whether or not there’s other lines of defence, or if there’s other drugs that could be used for treating those illnesses. If colistin is our last line of defence against NDM-1, then I imagine that the next round-table, that will be something that will be put forward and possibly, I don’t know, because I’m not part of the group that works with WHO on it, but I would imagine that it might be categorized as something of very high importance, based on the criteria that there is nothing else left for that. But I think this is more of a broad categorization, and care should be taken in that it needs to be applied more at what the infection is, and then consider what are some of the treatment options and whether or not there’s other or other drugs used for treatment. I hope that answered your question. |
| Moderator: | Yep, that’s great, thank you. There was also another question – you should be able to see it, if you – sorry, it was about how trading drugs online has become a popular way to make money, how do we solve that problem? So I guess that would be a question for Dr. Patrick or –. |
| Dr. Patrick: | Well, I guess the key thing is to make sure that we close any loop-holes with respect to regulation around antibiotics in Canada altogether. So in human health, there are obviously some fairly quick and clear rules around prescribing. No exceptions. So that if people are trading antimicrobials on the net, they’re doing so illegally, and can be pursued. In agriculture, there’s good regulation around what vets prescribe and that kind of thing, but there are a few things called ‘own use’ provisions where a producer can bring in antibiotics that are bypassing that usual mechanism, if it’s used only on their own property. But that means that we have a large amount of unmeasured, unregulated antimicrobial use, without veterinary oversight, or the same degree of veterinary oversight going on, because we have such a loophole. So that’s one area where it probably would be constructive for vets and medical people to get together and talk about a constructive way forward and a common agenda on that kind of issue. |
| Moderator: | Would anyone like to add anything else to that? |
| Dr. Shevchuk: | I’ll just comment that I think consumer awareness and education is important too, not only with antibiotics but there are many, many cases of, you know, counterfeit drugs purchased over the internet, or drugs that you don’t necessarily know what you’re getting, if you don’t know the supplier. So just education of the consumer in general that that may not be a good way to purchase drug products, is important as well. And Health Canada does do some in that area. |
| Moderator: | I was just going to see if I could get Rita one more question. And that was guidelines recommend first-line [] |
| Dr. Finley: | Ooh, that’s a hard question. I am not a physician, so I don’t have any input into how those guidelines are described. I know within CIPARS, from the human side we only capture resistance to antimicrobials on *Salmonella*, so if anything, that’s the only information that we could share with physicians. And I mean, the information is available through our annual reports and our website. We do have it only at the provincial level – we don’t have anything at the local level. And I’m not sure how we could provide that type of information at the local level. It would require capturing more information from patients. It is a good point, and I think it is something that we would be more than happy to discuss with the Medical Association if they feel it’s a part of the information that they need for prescribing practices. We’d be more than happy to discuss it with them. |
| Dr. Patrick: | And David – can I take a crack at that too? |
| Moderator: | Absolutely. Please do. |
| Dr. Patrick: | That sort of information isn’t widely available. In B.C., we make it a point not just to rely on our CNISP hospitals for their information, but we work with some labs that do a lot of community isolates, and we work together to publish those results in our resistance trends reports so that physicians know what’s going on. But it’s probably also interesting to know that through, that Dr. Saxinger with the Association for Medical Microbiology and Infectious Disease is working to try and see if hospitals around the country, which all have antibiograms, would be willing to post those to a common website, annotated and so forth because all kinds of hospitals all have lots of reasons why they would have different resistance patterns, based on their case-mix. But if there was a one place to go to, where you could a look to at least your major hospitals or major labs and get a flash look at their antibiogram, and everybody knew where that was, that would be a huge improvement, in terms of people being able to practice with current information. |
| Moderator: | Thank you very much to all of you for your presentation. I really appreciate it ... and for your comments. And I would like to mention too that we will be hearing the family physician’s perspective in one hour, and at 2 p.m. is when we’ll be hearing from Dr. Saxinger on antimicrobial use and stewardship in hospitals. |
|  | **END OF RECORDING** |