Introduction

I want to thank Dr. Gianotti for the highly stimulating afternoon we spent in Utrecht. I didn’t dare then to dream that that afternoon would lead to the invitation to present here for you in one of the most beautiful cities of Europe, one of the oldest universities, a place where I’m very lucky to come back after fourteen or fifteen years.

As an introduction, figure 1 shows a comic strip drawn in the ‘60s by a Dutch comic strip maker, Bob van der Born. He already envisaged the idea of going to a party and enjoying that party by chemical means.

One of the big advantages of being one of the last speakers is that many people have spoken before you so there are lots of things I don’t have to talk about.

So I won’t talk to you about the history of MDMA, although the history is older than even Charles Grob told you, as the first synthesis of MDMA took place in 1892 by Fritz Haber, the later famous German chemist, who as an undergraduate student synthesised MDMA without any idea about the properties of this substance. He published the method of synthesis as his doctoral thesis, his PhD, in 1898.
Neither I will talk about the effects of XTC, except that I can tell you that these are very nice.

Nor will I talk with you about the neurotoxicity of MDMA except that I think that even the proven effects are comparable with the risks we run with quite a lot of our daily activities, like driving cars, breathing polluted air, etc.; risks that we generally take for granted. Thus at least we have to question our motives to be so very interested in specifically this risk of taking this substance. This is not to deny the research done by George Ricaurte which I admire very much.

I won’t either discuss with you the user characteristics. First, because Umberto Nizzoli has extensively explained these characteristics and, as an illustration, just look at me!

I will restrict my presentation to the topic I was asked to discuss: harm reduction and XTC.

Harm reduction

Well, what is ‘harm reduction’? I don’t know who coined the word first. Umberto Nizzoli told me yesterday that it was already used in the early eighties with regard to glue-sniffing. To me, harm reduction is just a matter of common sense: just look at what happens, use your brains, and do what you have to do. Thus, when I started working with drug users in the early seventies in Amsterdam, I observed people that were shooting heroin using dirty syringes. Having had some medical training, I knew that they should use sterile syringes. However, it was equally clear that it was impossible for them to have a supply of clean syringes, so I started to provide them with clean needles, without thinking about AIDS, without thinking about hepatitis: just out of common sense!

The same was true with methadone: there were people talking about therapy, high doses, abstinence, reduction, whatever. My clients were clearly dependent, they had to supply massive amounts of money to the Mafia to obtain their preferred drug, so what was more obvious a strategy than just giving them, the only available replacement, methadone, under the easiest conditions, to reduce the strain on them?

Harm reduction is just applying common sense.
When I became interested in MDMA, in XTC, when that substance appeared in the Netherlands in the mid-'80s, I didn't foresee its future popularity. However, when it became more and more popular, I started to think about harm reduction and XTC, and as a result I presented a paper, "A Harm Reduction Strategy Towards XTC", on the first harm reduction conference in Liverpool, now nearly eight years ago. Here I am presenting the essence of that paper and how it developed in practice.

When one tries to devise a strategy one first has to look properly at the phenomena one has to deal with. This might sound self-evident, but if people had done this with regard to drugs at the beginning of the century and always thereafter we would not be in the present mess.

The properties of the drug

So I started to look at the properties of the drug XTC, as perceived in 1989. They are represented in Table I.

TABLE I. PROPERTIES OF THE DRUG

- pharmacological
  - "soft" action compared with hallucinogenics
  - "practical" duration of action
  - relatively easy to be combined with other drugs
  - easily dosed with regard to the differential effects
  - user can function socially
  - not addictive

- sociological
  - increased feeling of "belonging to others"
  - the "light"-trend
  - the "varia"-trend
  - revival of the sixties
  - "personal stardom"
The first remarkable difference between XTC and the other hallucinogenic drugs is that its action is "soft": it's not as strong an action as LSD - it's an easy drug. As such it is having a low threshold compared with the real hallucinogens as LSD.

It's also a practical drug: its action takes just a couple of hours (about 5), an evening, which is nice - you don't have to go too late to bed, you can do it quite well. It's not eight or more hours like amphetamines and LSD, etc.

Then it is relatively easy to be combined with other drugs. You can smoke a joint together with it, a bit of alcohol will not harm you, although you will notice quickly that the alcohol immediately reduces the magic entactogenic effect. As a consequence people do not drink alcohol when on XTC: disco owners generally complain about the fact that when there's a lot of MDMA taken by their customers the selling of beer is a lousy business for them. So, some club owners locked the water taps to force people to buy water for the price of beer.

Next, it is relatively easy to dose with regard to the differential effect, and here I'm talking about, on the one hand, the stimulant effect and, on the other hand, the entactogenic effects. These two are reasonably well separated: if you take a low dose -about 60-70 milligrams-, then the stimulant effect will be weak with a clear entactogenic effect, while when you take a high dose -150 mg- the stimulant effect will be the strongest. In practice this means half a tablet versus 1,5 tablet.

Another aspect of this drug is that the user, even under acute intoxication, is able to function socially - it doesn't distort reality and finally, it's not addictive. Altogether a number of properties that sound very attractive...

Let us look next to the more sociological aspects of this drug. First, the increased feeling of belonging: it makes you social. Second, there's a much more general trend in our society nowadays for "light" things: we take low-fat margarines, we take light beers, we take all things as light as possible. And, on the other hand, we have the trend to look for variation. In the past one drank just Heineken beer but nowadays in the Netherlands you can choose about 500 different kinds of beers. In the past you had just bread; nowadays you have white, brown, black, with corn, with this, with that: we look increasingly for variety. XTC fits nicely in both trends: it is "light" compared to hallucinogens as LSD and stimulants as amphetamine, and it is an addition to the range of drugs commonly taken in the out-going world: alcohol, tobacco, Cannabis, cocaine...
XTC fitted as well in another trend the so-called ‘revival of the sixties’. The youth suddenly recognised the symbols of the sixties. My daughter, about fifteen at that time, suddenly exclaimed:

- "Wow! you have the original ‘Imagine’ record of John Lennon? Couldn't you tell me before? And look! The Doors! Wow! That’s the original?"
- "Yes, you might notice all the scratches on the record."

She even found the poster inside the ‘Imagine' record showing John Lennon at the piano:

- "Is that really the real thing?"
- "Yeah, that’s the real thing."

It was impossible not to notice that at the start of this decennium the symbols of the sixties came back: the way of dressing, the psychedelic art, the use of cannabis, etc.. However, there was also a big difference. It were just the exterior manifestations, it was not the ideology of the sixties. What is one of the most remarkable things is that present-day youth culture - the ‘rave’ scene, let’s call it that - is so positive towards our mainstream cultural values: "OK, one can go out of one’s mind at the weekend, but Monday morning be clear and go to work or school. Ravers are either working or studying, they take part in mainstream society. They do not rebel against society as the ‘hippy’s’ used to do. As a consequence taking XTC is not a sign of rebellion as smoking a joint used to be when we were very young.

And, finally, an aspect is “personal stardom”, the individualism; it enhances your ego feelings although, at the same moment, it enables you to enhance your respect for the ego feelings of others as well and in that way the first and last effect touch to each other.

The XTC market

A completely different aspect that we observed was what one might call "the structure of the market". After all, drugs are just a commodity and, notwithstanding what our governments want us to believe, the most freely available and the most uncontrolled commodity we have. The characteristics of the XTC market are represented in Table II.
XTC is locally produced. It’s not a few countries producing the basic stock that is dispersed over the whole world, by a few large organisations. No, XTC can be made in a small lab, that can be established in a large kitchen for a small investment and as a result there is a short chain between the producer and the consumer. There is no world-wide network as we see in the case of heroin, cocaine etc.

XTC users belong to widely different subgroups: New Age, Clubbers, Gabbers; whatever the names of these groups, they are completely different, have different symbols and different patterns of behaviour. These different user subgroups have much more in common than their XTC use, but between them they have few more things in common than going to what we call "house party’s" and using XTC. While the hippies had a very strong coherence in terms of opinion, dress, music, etc. and as a consequence there was just one underground paper in that times, nowadays there are now tens of different underground papers. Adressing all different user groups, is a lot more difficult than it used to be in the past.

The users of XTC belong clearly to another class than the traditional drugusers, the junkies. They possess large, self-corrective capacities. We tend to under-estimate the capabilities of XTC users to correct each other’s behaviour. Many people consider drug users as stupid, irresponsible individuals that have nothing to do, and don’t want to have anything to do with other people. That’s the stereotype that we’ve been told to believe in. This stereotype however, belongs to the realm of myth. Especially the XTC users assist each other, and eventually correct each other. All over Europe user self-help groups have developed as an expression of this.

Finally, there has been a very rapid spread of XTC use among people, especially when we compare this with the spread of other drugs as Cannabis and heroin in the sixties and the seventeens.
The aims of harm reduction.

These were the realities we had to take into account when we started our harm reduction activities, that aimed at different levels of prevention.

In terms of primary prevention our aim was to give people that are considering the possibility to take XTC, proper information enabling them to make a well-balanced decision. For this we produced an information flyer with the most relevant data. Another thing was that we wanted to make clear to users that our initial research had shown that many if not most of the tablets being sold as XTC didn’t contain MDMA, but other substances.

MDMA was, until prohibited, produced by private individuals, generally good chemists, with university jobs, etc., for their personal use, use of their friends and a small network around them; not for profit but for fun. When our government in 1988 prohibited XTC most of these small-scale producers stopped producing because they didn’t want to be involved in something illegal. So the supply dried up. But this happened, at least in the Netherlands, at about the same time that popular interest in XTC and thus demand rose tremendously. This situation asked for adultery as became clear when we analysed a small number of tablets sold as XTC in 1989. The results (see table III) showed that amphetamine was sold as XTC, as were LSD and MDA.

### TABLE III: Composition of tablets sold as XTC in 1989

<table>
<thead>
<tr>
<th>Actual Substance</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDMA</td>
<td>48</td>
</tr>
<tr>
<td>MDA</td>
<td>11</td>
</tr>
<tr>
<td>LSD</td>
<td>7</td>
</tr>
<tr>
<td>Amphetamine</td>
<td>19</td>
</tr>
<tr>
<td>No active substance</td>
<td>15</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

The discrepancy between supply and demand turned out to create a welcome opportunity for a quite different group of people: enters the "amphetamine-mafia". These people were the only people that had the necessary experience to produce illegal amphetamines on a rather large scale and were now able to make vast profits: amphetamine was cheap and XTC at that time was very expensive. So they sold amphetamine tablets as XTC for the price of XTC.
So one of our aims was to inform people about the different substances that were sold as XTC. To be able to give them this information we needed to have the relevant data and that meant more data than the analysis of just a haphazard collection of tablets that we got from friends around us. To obtain this information we started the Drug Information and Monitoring System (DIMS), which will be described later.

Secondary prevention has other aims. We wanted to improve the knowledge among the user group about safer ways to use XTC and about how to help each other when difficulties arise. Among this it is important that users realise that drugs can have nice effects, but as well can be dangerous, can have awful effects, but do not identify with the drug. See a drug as a commodity, as something that may give you enjoyment, something that may harm you, something that can do good, can do bad, depending on how you use it but don’t identify yourself with the drug. Don’t be as stupid as hippies were in the late ‘60s, early ‘70s, thinking that one was a rebel, making revolution by smoking a joint. The drug is just a commodity, not something with mythical power.

Streetdrug analysis.

When I entered the drug field in the late sixties as a university neurophysiologist, I was told many stories about drugs that I could hardly believe, both by the official government experts and by the users themselves. As an example: the myth at that time that LSD often was adulterated with amphetamine. So I started to analyse street LSD and soon found out that LSD never contained amphetamines. Actually users projected their own tensions and nervosity on the substance; it was just a myth and to debunk this kind of mythology I started a street drug analysis program between 1970 and 1973. So, when in 1989 confronted with all these different tablets of unknown composition sold as XTC, I again started a street drug analysis program.

As we could not limit this to analysing a few tablets, I proposed to the Dutch government a programme to analyse tablets on a large scale in order to monitor the developments on the drug market. The government found this an interesting proposal and was prepared to subsidise the project:

that was the start of the DIMS-project: funding to pay a good laboratory and funding for the organisation. However, we didn’t get funding to buy illegal drugs. We were occasionally able to buy some tablets but the most tablets that we got were those that were sent to us by users telling us "Oh I got such a headache (or whatever). Please analyse this pill because it must be a
bad pill." Thus what we analysed was a highly-biased sample. But at least it gave us some qualitative data on the different substances that might be found in "XTC-tablets": MDMA, MDEA, MDA, MDOH, DOB, 2CB, MBDB, amphetamine, caffeine, etc.

The most important are depicted in figure 2. MDEA is like MDMA but the entactogenic effect is less magic and has a shorter duration of action. MDA is like MDMA but it gives weak hallucinations. MDOH is like MDA, but working shorter and users report a real hangover. 2CB is something different: the effects in low doses, under 18 milligrams, are more or less like MDMA. However, if you take higher doses it turns into a real hallucinogen with LSD-like action. DOB is a very strong LSD-like hallucinogen with a duration of action of up to 30 hours.

Another question was: how strong are the pills? Figures 3 and 4 depict the frequency in which we found tablets of different strength of MDMA and MDEA.

However, all these data were derived from a highly biased sample, so we had to devise another way to get more representative data.

Testing XTC and the Safe House Campaign.

Our main aim being prevention, my colleagues in the DIMS project, August de Loor and his crew of the Adviesburo Drugs in Amsterdam, started the so-called Safe house Campaign, to increase safety at the Dutch raves, known as "House party's".

All aspects of safety were part of this campaign: availability of cold water, chill out rooms, condoms, good ventilation, drug help and information are all part of this approach. Within the framework of this paper however, I will limit myself to the description of the drug testing part, although it is imperative to understand that this is only a minor part of the whole Safe House Campaign.

Having built up an extensive list of tablets and the results of their analysis, we developed a system to identify tablets by their outward, exterior appearance, a system comparable to those already developed by pharmacists: measure the diameter, the thickness, the weight; code for
the different forms, code for the colour, the eventual logo in short code for a number of relatively easily measurable qualities - and express these in a numerical code of 14 digits. Combine this numerical description with the results of qualitative and quantitative analysis performed in the lab with HPLC, GC-MS etc, and make a list of all these data in numerical order. This then enables us to identify tablets and their contents: a tablet that look likes this, according to the code, contained on analysis this substance. This system enabled us to identify tablets rapidly on the spot without destroying them.

Naturally we had to analyse a few of each type of tablets to be sure and so we very quickly were confronted with "look alikes". When a tablet is becoming known als "good" (i.e. containing MDMA in a reasonable amount, about 100 mg), within a few weeks an identical tablet appears containing other substances.

As a consequence we have to monitor all tablets continuously, but working now with a weekly prepared ‘top thirty’ of the most frequently encountered tablets we still can say with reasonable certainty what they contain. As a final control, we scrape off a little bit of the tablet, add a drop of a reagent to it and look at the colour reaction. This reagent discriminates between MDMA, MDEA and MDA (colour: blue), amphetamine (orange) and DOB (green). This is by itself not a 100% sure identification, but if the colour observed is different from what is to be expected on the basis of earlier lab results as given in our encyclopedia we at least know that there’s something wrong. So we can at least identify tablets as not containing the desired substance, i.e. identify those that possibly contain more dangerous substances. We have repeatedly tested the reliability of this system, and we found out that in all tablets that we identified the subsequently obtained lab results generally confirmed our identification and, more importantly, no false negatives occurred. But this system functions only by checking and re-checking every week about 80 different tablets in the laboratory. If you ever consider to introduce such a system in your own country, take care that you have a vast lab capacity because it is necessary to analyse such numbers of tablets every week.

Now, we had the possibility to obtain a vastly larger set of data by creating an on the spot identification and information service for users at parties. Armed with the list and the colour reagent, we were able to go to the parties and offer users the possibility to have their tablets identified before taking them.

At this moment, over 90% of tablets that are shown to us at such situations are in our encyclopaedia. If we don’t know the tablet we say to people ‘Hey, it’s a new one, we don’t know what it is’ and then nearly always we get them to be analysed in the lab. This system enables us to identify 99% of the tablets that we get at the raves.
Information and harm reduction.

It is important to stress here that the possibility for people to have their tablets identified before they take them, to avoid dangerous adulterated tablets, is not our only aim. At least as important is that when people come to our service this is the moment too to discuss other aspects of the use of such substances. It's not "oh, it’s so many milligrams of MDEA", it’s also, "Isn't that a bit strong?" For a guy of nearly 7 foot and a weight of 100 kg a tablet of 100 mg MDMA is, let’s say, a reasonable safe dose. But a to small, slender, 16-year old girl with the same tablet, we say, 'this tablet is much too strong.' We prefer not to give exact strength but to apply a 'how are you; what would this be for you?'. The identification is given in personalised advice.

Moreover, this advice is given in a non-moralistic way. Actually, we do not discuss drug use as a moral issue. For moral issues consult a priest, a rabbi or a minister; they "studied" morals. Our task there is secondary prevention. As most drug education is heavily adulterated with moral issues, and as a result, is perceived as untrustworthy, especially those parts of the message that are relevant in the situation of somebody who has already decided to take the drug, are not received.

As illustration: we have extensively discussed the issue of neurotoxicity. In my view, the findings of George Ricaurte are sound. Corroborative evidence on changes in the serotonergic function obtained by brain scans of human XTC-users was given by Charles Grob, while I recently heard from Dr.R.Thomasius of the Psychiatrische und Nervenklinik from the Hamburg University that he made comparable if yet unpublished observations on brain scans made by him.

Nevertheless, we agreed too that the clinical evidence of these findings is completely unclear.

Well, try then to tell these kids about the results of this research. Show them these pictures of these brains, suggesting so much damage. But, they will not have noticed any differences in their friends. Explain them that the clinical significance of these findings is unclear. Tell them that their mothers are slimming with the help of a prescription medicine that causes the same changes in human brains. Try to explain that, tell them that the damage might show up in forty years time. They will not believe you! They will think that you’re telling them that because you’re
opposed morally against drug use. They have been told so much nonsense by those "drug educators".

The fact that we analyse the tablets as a service and talk about it shows that we are not taking the moral position that all drug use is bad. We accept that drug use can have positive effects as well as negative, but that you have to be conscious about the risks you take. As a consequence, if we advise people not to use drugs, it’s not because of this general moral stance, but an advice as tailor-made as possible for you.

A girl calls me: "Dr. Fromberg, please tell me, I’m a diabetic but I would like to take XTC. What shall I do? My doctor tells me not to do so, but does not tell me why." I answer that I don’t know of any clear research data that show that XTC and your sugar level regulation are influencing each other in such a way that I have to say "don’t!". But that there are some data on amphetamine and some other considerations that, if I were a diabetic, I wouldn’t do it, while being very glad not to be a diabetic, eh? So, I’m sorry to have to advise you not to do it, because you will miss the fun! But for you, it’s too risky, I wouldn’t do it. That kind of an advice is taken well, because they know it is not out of a moral indignation or whatever, that such advice is given.

In this way the XTC analysis programme is an important medium to spread information and to give drug education: not drug-abuse education, but drug-use education.

Intervening at the market....

Another effect of our activity is not on the individual, but on the public health level. When analysing tablets in the lab, we occasionally find tablets that we consider significantly more risky, if not directly dangerous. One day we found that tablets were sold as XTC, that actually contained DOB, a strong hallucinogen with a duration of action of 25 hours. That is no emotional, silly, speedy XTC. Imagine, you’re 18 years old and have decided to take XTC for the first time. You expect an easy-going evening, a little buzz, feeling nice, like you have seen as an effect in your friends. You drop this tablet which, although being sold as XTC, contains DOB and within half an hour you are on a trip right far into space, strong hallucinations: the floor is more like a sea moving than like something you can dance on; your hand is a five-headed snake, depending on how you feel about snakes. Now this is quite a confusing experience, to say the least. An experience that can be very threatening... Not for physical reasons, chances that you will die if you take such a tablet are slimmer than the chance to die in a car accident the next time you take your car. No, its psychological effect can be highly unsettling for an eighteen
year old girl (or boy) under improper conditions, to use an understatement.

In such cases we produce a flyer, instantly, as depicted in figure 5. In this case it was not DOB, but 2-CB. Translated:

‘Warning! Recently we have found a tablet that, according to our laboratory research, contains 2CB in much too high a dose. Look out! This tablet is being sold as XTC.’ And the type of tablet was a ‘Smiley’, having this type, this logo on it.

‘There are also other ‘Smileys’ but these contain amphetamine or MDA but these ‘Smileys’ are very dangerous and have a very strong effect. We advise you not to use it. They look like this: diameter, thickness, colour, upside, underside…’

We have perfect policemen in the Netherlands. If all countries had cops like we have cops, the world would be a better world. This flyer we faxed to the police headquarters. The police office printed them and put them on their fax machine, pressed one button and next moment our flyer appears in all police stations in the Netherlands. Those police stations in the neighbourhood of a disco or another relevant situation such as a rave party, put the fax on a photocopying machine, take their car, go there and hand out as many copies as necessary.

In this way we can warn people for such dangerous substances, and as a result they do hardly appear on our drug market. I’m afraid these are sold in Italy and England, where this kind of health services do not exist.

Another example of such an intervention is this advertisement in a paper:

‘More and more MDEA tablets with too high potency are appearing on the market which cause unnecessary problems for the user. DIMS-Project, NIAD, Utrecht.’

We just put this advertisement in a number of daily papers in the Netherlands and, within a day,
our phone rang. It was somebody asking for an explanation. So I explained that such high a
dose caused many problems on party’s. He was told that we had a flyer prepared, and could be
out tomorrow!’ He said he understood the message. Well, we haven’t seen any more of these
tablets thereafter....

The XTC-market.

Apart from this, this on the spot testing gives us a better insight in the market, than the highly
biased sample we send to the lab. How representative our sampling by quick identification is,
we still don’t know but at least it’s a better approximation. Table IV shows the data we collected.